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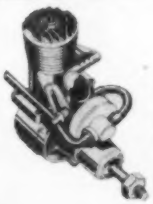

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With the exception of the Wakefield competition, the American modeler is a confirmed isolationist. We do not participate in other international events. In fact, the great majority of us do not know such events exist. Our attitude is like that of the fond mother who, viewing a parade in which her son was marching, cried, "Look, they are all out of step except Johnny!"

The time has come when we must exercise some voice in the affairs of the F.A.I. Since 99 out of 100 U. S. modelers don't know what the F.A.I. is, those strange initials — which readers keep asking about — stand for Federation Aeronautique Internationale, which is a kind of model builders' United Nations, or international AMA, if you will, which writes the rules and confirms the records made in many lands.

Virtually every installment of the Official AMA News column in this magazine reports new F.A.I. records. In the April issue, for example, it was stated that . . . "unless specifically stated, the records (that followed) are for flying wing type models, rise-off-ground. Gas models, altitude — 1788 meters (5,866.127 feet), established by M. Boris Parparov, (Russia), on August 12, 1950. Gas models, A. O. W., altitude — 1550 meters (5085.292 feet) established by M. E. Rakov, on July 28, 1950." This sort of thing goes on, and on and on!

A surprisingly (or is it surprising?) large amount of the international records are held by the Russians. One wonders who times these flights, who vouches for them, and on what basis the F.A.I. feels justified in accepting records from behind the Iron Curtain. The unfortunate impression is that the F.A.I. unwittingly is turning into a propaganda medium. One feels insulted in reading these continuously long lists of great Russian flights.

From an American point-of-view, many of the F.A.I. events, for which records have been recognized are so hopelessly outdated, going back to methods that have been proved worthless for rating models a full generation ago. Mere distance or duration of outdoor models, for instance, proves nothing, except perhaps the flying ability or endurance of a chase plane pilot. These figures go into actual hours and many dozens of miles. Experiments a couple of years ago in this country found Navy Avenger pilots unable to climb with a free flight model that was in a thermal. Distance flights, where planes reach certain altitudes, involve immense technical details. There is not space or time to go into these this month, but at least one leading expert has acquainted us with some of the technical questions involved, and they are out of this world. Despite Russian overtones and mid-Victorian events, the F.A.I. has evolved some excellent competitive rules because of compromises effected by certain member nations who have proved that America should speak its piece in international modeling affairs.

What should we do? A well-known foreign modeler, a chap who for years has traveled to the famous contests in many countries, recently ran down the F.A.I. situation, as it affects Americans. Excerpts from this important analysis follow, and it is earnestly suggested that every competitive modeler in this country urge AMA headquarters to form some liaison committee to promote American participation in international events and an American voice in F.A.I. modeling affairs.

"Quite frankly, it seems to me that the main bugbear in international modeling," begins this authoritative observer, "is the lack of attention given to F.A.I. matters by your people. I appreciate that, with the majority of conferences being held in Europe, this puts America at a disadvantage, but surely there are competent people available who are near enough to attend such meetings on behalf of the American modelers.

"We are, of course, up against the old and never-ending difficulty of appreciating the different national points of view, and I am afraid while the F,A.I. is predominantly continental, particularly in its attendance at conferences which fix rules, etc., we shall always be up against the average continental conception of what is and what is not a good aeromodeling event. I can assure you that many F.A.I. regulations are very opposite to our viewpoint, although we have definitely been able to temper matters in the last few years mainly owing to the good offices of . . . . However, his general complaint is that he receives very little support, particularly from like-thinking countries such as America, and it is utterly futile to object to or complain about matters (*Continued on page 5*)

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# REPORT FROM THE WEST

## by Jim Saftig

The rather dry spell of little or no flying seems to be a thing of the past with the numerous contest dates that have appeared on the agenda. For the present, let's take a look at the events that are shaping up for the future. The spotlight is still on the AA power plant. One of the newer events in this class is the AA PAA Load event. The Hi Tailers recently held their First Annual AA PAA Load Meet at the Fontana Airport, and this event will undoubtedly become much more popular as the season goes on. It was a while back when your writer had a chat with Dallas Sherman, one of the originators of the PAA Load event. At this time, he was discussing the possibility of a successful AA event. At first, it was thought that the infant engines might have a bit more than they could handle with excess baggage stowed in the fuselage. Since then, these engines have taken the market by storm in several displacements and have shown what an astounding job they can do. Not to be outdone by the weight lifting free flight ships, the F.A.S.T. Club has stepped into the AA engine class with their famous Team Racers. At the recent Model and Hobby Show held at the Shrine Auditorium in Los Angeles, Keith Storey, Les McBrayer, and Rudy Panko sported three very slick AA Team Racers. Due to the limited flying area, only seventeen foot lines were permitted, and the boys had to fly in very close formation.

• • •

Not to be outdone by the "runts", the .19 class engines are again stepping into the limelight. We caught part of the Team Speed show at Santa Anita, home field of the F.A.S.T. Club and were very interested in the .19 class Team racers. One of the regular size racers had a Mac .19 under its bonnet and this particular ship, from a flying start, clocked in a very sharp 85 mph. We inquired of Keith Storey and a few of the other stalwarts of the speed club if they were planning an A class for team racing. The affirmative nod of heads was evident. It is very likely that the ships in the A class will keep the same over-all measurements as the B class ships, only these newer models will be scaled more accurately to the Goodyear Racers. We are only surmising the above specifications because of the size of the .19 class ships seen at Santa Anita. It was evident that the smaller class engine could be more easily cowled, thus allowing a better scale effect.

• • •

Lawrence Williams had two identical ships that were very unique in construction; both were all metal and were very clean in design. He calls them *Senior* and *Junior*. Senior carries the regular specifications of 125 sq. in. wing area etc., but *Junior* is the real cutie. This small ship is all metal and identical but weighs in at just five ounces and carries a Wasp .049 for power. We have seen many of Lawrence's ships in the air and they all handle beautifully. How in the heck do you get that metal bent and faired in so well Larry? Our good friend Darryl Dolgner had his Veco .29 team racer out at the field, and this lad also turns out excellent workmanship. His model is up to specifications and weighs in at 26 ounces. We were very interested in the performance of the Veco .29 engine. Darryl tells us that it has power, easy starting characteristics, and does very well on the one ounce fuel limit.

• • •

We caught a sneak aotion preview of the new Torpedo .19 turned out by the old engine masters, Johnny Brodbeck and Lud Kading. Chuck Schuette of the Hawthorne Sky Burners installed one of the new power plants in his new speed job and proceeded to turn the terrific speed of 124 mph. At the present time, Harold deBolt is holding down the A speed "mug" with a snug 120.27 record. Better get going Harold. No, this wasn't a pylon flight! Schuette's ship had the regular metal bottom

(*Continued on page 46*)

## SCRAP BOX

(*Continued from page 2*)

that have passed, if your national viewpoint has not been expressed at the proper time and place. I have no doubt about it in my own mind that the American point-of-view could carry a great deal of weight at such meetings, but if it is not tabled (or you have no representation), it only follows the usual pattern of things that others on the spot carry the day, sometimes with their stupid (to our way of thinking) recommendations.

"I feel that you personally could do a great deal through the press to urge this point-of-view for, I personally have the impression that the AMA is prepared to criticize but do nothing about it. Perhaps a little prodding through the columns of your paper will make them realize that if they want any alteration, there is only one way to go about it. I suggest this particularly in view of the obviously increasing scope now being afforded to international aeromodeling, for the only non-continental international event this year is the British meeting being held on the 13-14 of May.

"I had hopes at an earlier date that America would take the initiative regarding power duration championships, but you see that this has been snaffled by the French, their meeting taking place on the 15-17 of June. I am not aware at this stage whether or not a trophy is available for this meeting, but it appears they have got in the thin end of the wedge, which is a great pity, as from my experience the French are extremely poor organizers (and furthermore are prepared to alter and vary standard rules to suit their own particular competitors!), and even at this late date (only 7 or 8 weeks before the event), there is absolutely no knowledge available regarding the contests. We naturally wish to know how many classes of model are eligible for competition, numbers per team, etc. I have no doubt that we shall get this information about a fortnight before the event, which pretty effectively excludes any possibility of conducting proper eliminations in the way we favor in this country. (The usual continental system favors the selection of teams by a selection board, but we in this country are dead against such methods).

"All in all, it seems to me that the only solution is an all out effort towards American representation and participation in F.A.I. affairs."

Ron Warring, world famous British modeler and writer on the subject, has set forth in Model *Aircraft*, what is probably the most erudite argument to date defending the growing specialization in such types of models as the Wakefield. This, of course, is by way of the recent discussions in this column of the Wakefield meet.

"Is model flying a sport or a game? Which is the best competition type of model?" asks Warring.

"I feel that a lot of harm has been done by treating model flying as a game rather than a sport — using these two terms in the sense that a game has popular appeal, whereas a sport leads to specialized development. To progress, or even to survive, the competition side must be regarded as a sport, eliminating the luck element as far as possible. If this is condemned on the score of restricting this sport to a number of specialists, the same reasoning condemns international football, cricket or any other established sport.

"Of all the free flight model types, the one which best combines design, construction and flying skill is undoubtedly the Wakefield, and yet still retaining that very attractive luck element. You have absolutely to earn performance with a Wakefield. Power is relatively limited and the success of a model of this type depends very largely on how efficiently this power is used up.

"Gliders dodge this important — and difficult — issue by being towed up to a height, and even a badly trimmed model can do a fair duration if it is capable of being towed up to 300 feet. Power models have an excess of power, and the flier's responsibility here virtually finishes some 10 seconds after launching.

"I have had enough experience with all types of free flight contest models to have built up a definite idea of the requirements of each. Primarily I like model flying as a sport, and I have many times weighed up the sporting qualities of each contest type. The present Wakefield wins hands down as the best sporting model and would appear certain to continue to do so as long as the specification allows us to produce a design where sheer performance is the main aim. This is not just a personal preference, although no doubt, I shall be accused of bias in this direction.

"Any drastic alteration to the Wakefield specification would, I feel, be a sad loss to model flying, for it is a world-recognized class around which the international movement has largely been built. Another one of its attractions is that it is very definitely a non-commercial model type and the professional and semi-professional modeler enjoys no special advantage. This is also true of gliders, but not so of power or controline."

Model builders are determined people. The irresistible force has nothing on the chap who wants authentic scale details for a miniature of some big plane that has caught his eye. Consider the case of Bill Blake of Le Mars, Iowa. The Paspe *Skylark* captured his fancy. This was a job built in 1935. In fact, only one plane was made.

"We first saw the plane at the Le Mars airport," says Bill, "and right away started dreaming of a scale model. When we returned to the field, the ship had been flown to its home base at Cherokee some 35 miles away. By the time we got back to Le Mars, we had thrown the rods and shaft in our Ford so the indirect cost of the model already was $90. And when we had arrived at Cherokee, the plane had been sold and flown to another state. But we did manage to get data and some pictures from the former owner, but not enough for a really exact flying model."

**by BILL WINTER**


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| Super Champion . . . (D) | 16.50 |
| Super Cyclone Dual . (D) | 13.95 |
| Super Cyclone . . . . (D) | 12.95 |
| Thor . . . . . (B) | 9.95 |
| Thor Kit . . . . . (B) | 6.95 |
| Triumph 49 . . . . . (C) | 17.95 |
| Triumph 51 . . . . . (D) | 17.95 |
| Wasp Twin . . . . . (D) | 29.50 |

**AIR ENGINES**

| | |
|---|---|
| O.K. C 02 . . . . . | 5.95 |

**JET ENGINES**

| | |
|---|---|
| Dyna-Jet Redhead . . . | 85.00 |
| Jetex 50 . . . . . | 1.95 |
| Minijet . . . . . | 35.00 |

## ENGINE PARTS!!

*EVERY part for EVERY ENGINE listed on these pages is IN STOCK at America's Hobby Center. Send today for the parts you need to keep your engine in flying condition.*

## FREE-FLIGHT PLANES

| | |
|---|---|
| Baby Phoenix 36" AA . . . . . | 1.75 |
| Bootstrap 40" AA . . . . . | 2.50 |
| Buccaneer B Special 54" B . . . | 3.95 |
| Buccaneer C Special 72" C-D . . | 7.95 |
| Buccaneer Super 90" D . . . . . | 10.95 |
| Civy Boy 24" A . . . . . | 1.50 |
| Civy Boy 31" AA . . . . . | 1.95 |
| Coronet 46" A-B . . . . . | 2.50 |
| Dakota 24" AA . . . . . | 2.75 |
| Folly 52" A-B . . . . . | 1.75 |
| Fu-bar 36" AA . . . . . | 1.75 |
| Hawk 27" AA . . . . . | 1.50 |
| Junior Phoenix 36" A . . . . . | 2.25 |
| Lift Master 54" AA . . . . . | 2.25 |
| Little Trainer 30" AA . . . . . | 1.50 |
| L. I. Rascal 27" AA . . . . . | 1.50 |
| Luscombe Sedan 76" D . . . . . | 7.50 |
| Luscombe Silvaire 63" A-B . . . | 3.00 |
| Mini-Hogan 24 3/4" AA . . . . . | 1.95 |
| Mini-Hogan 45 48" AA . . . . . | 2.95 |
| Nomad 18" AA . . . . . | 1.50 |
| Powerhouse 33" AA . . . . . | 1.75 |
| Powerhouse 41" A . . . . . | 3.95 |
| Powerhouse 56" B . . . . . | 4.95 |
| Powerhouse 62" C . . . . . | 6.95 |
| Phoenix Flash 52" AA . . . . . | 2.75 |
| Profile Powerhouse 24" AA . . . | 1.00 |
| Sandy Hogan A-B-C . . . . . | 4.95 |
| Sandy Hogan 70" B-C . . . . . | 4.95 |
| Scorpion 50" AA . . . . . | 1.50 |
| Scot Free 24" AA . . . . . | 2.95 |
| Shadow 32" AA . . . . . | 1.95 |
| Sioux 24" AA . . . . . | 2.50 |
| SE 5 17" AA . . . . . | 2.50 |
| SE 5 32" B-C-D . . . . . | 9.95 |
| Senior 9 27" . . . . . | 3.95 |
| Senior 19 34" . . . . . | 4.95 |
| Senior 29 39" . . . . . | 6.95 |
| Senior Puddlejumper 25" A-B . . | 1.00 |
| Sharpy 47" C-D . . . . . | 4.95 |
| Sky Box Trainer 26" B-C-D . . . | 3.95 |
| Sky Box Stunt 42" B-C-D . . . . | 3.95 |
| Sophomore 9 28" A . . . . . | 2.49 |
| Sophomore 19 34" A . . . . . | 3.95 |
| Sophomore 29 39" B . . . . . | 4.95 |
| Speedster 12" AA . . . . . | 2.25 |
| Speedwagon 20 12" A . . . . . | 4.95 |
| Speedwagon 30 18" B . . . . . | 4.95 |
| Speedwagon 60 18" C-D . . . . . | 9.95 |
| Sportwing 36" A-B-C . . . . . | 3.95 |
| Squaw 39" A-B-C . . . . . | 6.75 |
| Stinson Sta. Wagon 43" B-C-D . . | 5.50 |

## U-CONTROL PLANES

| | |
|---|---|
| Aeronca Sedan 22" AA . . . . . | 1.95 |
| Aeronca Sedan 36" A-B-C . . . . | 4.95 |
| A. J. Fireball 36" B-C-D . . . . | 6.95 |
| All Amer. Trainer 21" AA . . . . | 1.75 |
| All Amer. Stunt Trainer Jr. 26" A-B . . . . . | 2.50 |
| All Amer. Stunt 36" A-B . . . . | 4.95 |
| Avro-Baby 22" AA . . . . . | 2.98 |
| Baby Ace 18" AA . . . . . | 2.50 |
| Baby Cinch 30" B-C . . . . . | 3.95 |
| Baby Clowa 22" AA . . . . . | 1.50 |
| Baby Di-Doe 21" AA . . . . . | 1.75 |
| Baby Era 18" AA-A . . . . . | 2.50 |
| Baby Era Bipe 18" AA . . . . . | 2.95 |
| Baby Sky Box 36" A-B . . . . . | 2.95 |
| Baby TC-2 Trainer 18" AA . . . . | 1.98 |
| Baby V Shark 20" A-B . . . . . | 2.95 |
| Baby Barnstormer 22" AA . . . . | 2.98 |
| Barnstormer 47" A-B . . . . . | 5.95 |
| Bat 32" C-D . . . . . | 2.50 |
| Bearcat 35" C-D . . . . . | 4.95 |
| Bee 24" A . . . . . | 2.50 |
| Beechcraft 24" A-B . . . . . | 5.98 |
| Ben Howards Pete 30" B-C-D . . | 6.98 |
| Bipe Stunt Train. 22" B-C-D . . | 2.95 |
| Brave 36" A-B-C . . . . . | 4.75 |
| Bug 17" A . . . . . | 1.00 |
| Cessna 22" AA . . . . . | 1.95 |
| Cessna 36" B-C . . . . . | 6.98 |
| Chief 51½" A-B-C-D . . . . . | 7.50 |
| Chupp Autogiro 34" B-C-D . . . | 6.75 |
| Di Doe 28" A-B-C . . . . . | 3.95 |
| Dmeco Spl. 24" C-D . . . . . | 7.98 |
| Dmeco Spl. Jr. 16" A-B-C . . . | 3.95 |
| Dreamer 20" B-C-D . . . . . | 7.50 |
| Dynamic 26" A-B . . . . . | 3.80 |
| Fire Baby 19" AA . . . . . | 2.50 |
| Flip-Flap 24" A-B . . . . . | 1.95 |
| Flivver 24" B-C (all alum.) . . | 3.95 |
| Flying Circus Jr. 16" AA . . . . | 1.50 |
| Flying Clown 28" A-B-C . . . . | 1.98 |
| Flying Saucer 18" A-B . . . . . | 1.98 |
| Flying Silver Saucer (4 ft. Diam.) | 4.95 |
| Freshman 9 24" A . . . . . | 2.49 |
| Freshman 19 30" A . . . . . | 2.95 |
| Freshman 29 36" B . . . . . | 3.95 |
| Glo Bug 27" B-C . . . . . | 2.95 |
| Hawker Super Fury 24" A-B . . . | 2.50 |
| Hell—Razor 14" A . . . . . | 6.95 |
| Hell—Razor 16" B . . . . . | 6.95 |
| Hell—Razor 18" D . . . . . | 6.95 |
| Hell—Razor 9" AA . . . . . | 2.00 |
| Infant Wagon 20" AA . . . . . | 1.50 |
| Junior Stunt 9 27" AA-A . . . . | 3.49 |
| Junior Stunt 19 34" A . . . . . | 3.98 |
| Junior Stunt 29 40" B . . . . . | 4.98 |
| Key 29" B-C . . . . . | 4.95 |
| Key—Det 18" AA-A . . . . . | 2.98 |
| Kingpin 28" A-B . . . . . | 3.95 |
| Knockout 19" AA . . . . . | 2.50 |
| Lil Duper Zilch 42" A-B . . . . | 3.98 |
| Little Bipe 16" AA-A . . . . . | 1.50 |
| Little Devil 18" AA-A . . . . . | 1.50 |
| Little Mustang 18" (AA) . . . . | 1.98 |
| Little Schnoo 17" A . . . . . | 1.50 |
| Luscombe Sedan 25" AA . . . . . | 1.98 |
| Maverick 24" AA-A-B . . . . . | 1.00 |
| Minnow 28" A-B-C . . . . . | 4.95 |
| Mini-Zilch 19" AA . . . . . | 1.25 |
| Monocoupe 36" B-C . . . . . | 5.95 |
| Mr. Mulligan 22" A . . . . . | 2.25 |
| Mr. Mulligan 32" B-C . . . . . | 4.95 |
| Mustang 37" A-B . . . . . | 2.50 |
| Navion 25" A . . . . . | 1.50 |
| New Era 28" A-B-C . . . . . | 2.95 |
| N.A. P51 16" AA . . . . . | 2.50 |
| Nifty 23" A-B-C . . . . . | 4.98 |
| Pagoose 25" A . . . . . | 3.98 |
| Pee Wee Pup 17½" AA . . . . . | 78 |
| Pee Wee Pursuit 10" AA . . . . | 1.00 |
| Pee Wee Zilch 32" A-B . . . . . | 3.95 |
| Peter Pan 16" AA . . . . . | 1.50 |
| Phantom Era 28" A-B . . . . . | 3.95 |
| Piper Cub . . . 22" AA . . . . . | 1.95 |
| Piper Cub Comet 35" A-B . . . . | 2.98 |
| Piper Cub Monogram 30" A-B-C . | 4.95 |
| Piper Cub Trainer 25" AA . . . . | 1.98 |
| Piper Vagabond 24" AA . . . . . | 2.98 |
| Piper Vagabond 36" A-B-C . . . . | 3.95 |
| Pirate 40" B-C-D . . . . . | 4.50 |
| Pitts Special 28" A-B . . . . . | 3.95 |
| Polish Fighter 36" B-C-D . . . . | 5.98 |
| Presto Liner 20" A-B-C . . . . . | 3.95 |
| Primer 12" AA . . . . . | 1.49 |
| PT Trainer 26" A-B . . . . . | 1.99 |
| Puddle Jumper 19" AA . . . . . | 1.00 |
| Rookie Jr. 18" AA . . . . . | 1.50 |
| Rookie Trainer 36" B-C-D . . . . | 2.98 |
| Scout 24" AA . . . . . | 2.50 |
| SE 5 17" AA . . . . . | 2.50 |
| SE 5 32" B-C-D . . . . . | 9.95 |
| Senior 9 27" . . . . . | 3.95 |
| Senior 19 34" . . . . . | 4.95 |
| Senior 29 39" . . . . . | 6.95 |
| Senior Puddlejumper 25" A-B . . | 1.00 |
| Sharpy 47" C-D . . . . . | 4.95 |
| Sky Box Trainer 26" B-C-D . . . | 3.95 |
| Sky Box Stunt 42" B-C-D . . . . | 3.95 |
| Sophomore 9 28" A . . . . . | 2.49 |
| Sophomore 19 34" A . . . . . | 3.95 |
| Sophomore 29 39" B . . . . . | 4.95 |
| Speedster 12" AA . . . . . | 2.25 |
| Speedwagon 20 12" A . . . . . | 4.95 |
| Speedwagon 30 18" B . . . . . | 4.95 |
| Speedwagon 60 18" C-D . . . . . | 9.95 |
| Sportwing 36" A-B-C . . . . . | 3.95 |
| Squaw 39" A-B-C . . . . . | 6.75 |
| Stinson Sta. Wagon 43" B-C-D . . | 5.50 |

**BURIED IN THIS AD**

are most of the new items. Sometimes there isn't time or space to include them. But, if available, we have it.

| | |
|---|---|
| Super Sky Box Stunt 47" C-D | 4.50 |
| Super Squirt 21" (Jet) | 5.95 |
| Super Stunt Runt 20" A | 1.98 |
| Sweet Chariot 18" AA-A | 2.50 |
| T-38 N.A. Trainer 30" B-C | 3.95 |
| Taylorcraft 35" A.B.C. | 2.98 |
| Thunderbolt 30" C-D | 4.95 |
| Trail Blazer 24" B-C-D | 2.98 |
| Trixter Babe 20" AA | 1.25 |
| Trixter Invader Jr. 40" A-B | 2.95 |
| Trixter Prof. Trainer 32" A-B | 4.50 |
| Trixter Profile 32" A-B | 2.50 |
| Trixter Profile 38" B-C | 3.50 |
| Trixter Twin Profile 47" B-C | 5.00 |
| Tuffy 24" AA-A | 1.98 |
| Vampire 40" B-C | 4.50 |
| Viking 51" C-D | 6.75 |
| Waco 32" B-C | 4.95 |
| Warrior 36" A-B-C | 4.95 |
| Wee Duper Zilch 34" AA | 2.95 |
| Wee Willie 18" AA-A | 1.95 |
| Whirlaway 11" AB | 3.95 |
| Wildfire 25" B-C-D | 4.50 |
| Wing Ding 18" AA-A-B | 2.25 |
| Wing Dingue 16" AA | 2.25 |
| Yank 25" AA | 1.95 |
| Zing 24" C-D | 4.98 |

## ACCESSORIES

**FUELS** (Continental U.S.A. Only)

| For Ignition | Pts. | Qts |
|---|---|---|
| Ohlsson #1, #3 | .85 | 1.60 |
| Power Mist #6 | .85 | — |
| For Glo | | |
| Ohlsson #2, #4 | .85 | 1.60 |
| Ohlsson AA | .85 | — |
| Powermist Glo | .85 | — |
| Powermist Spitfire | — | 1.60 |
| Ranger Glo | .90 | — |
| Testers 30 | .75 | — |
| Dynagio | .85 | — |
| Ranger AA | .85 | — |
| Blue Blazer #1 | .70 | — |
| Blue Blazer #2 | .80 | — |
| Ranger A Infant | .70 | — |
| OK Cub | .85 | — |
| Spitzy | .85 | — |
| Supersonic 100 | .80 | — |
| Supersonic 1000 | 1.00 | — |

**WHEELS**

| | |
|---|---|
| Semi Pneumatic (pr) 2" | 1.10 |
| 2½" | 1.75 |
| Sponge Rubber, Dural hub (pr) 1"-1" 20c; 1¼"-1¼" 35c; 1½"-1½" 45c; 2"-2" 70c | .45 |
| Tail Wheels ½"-1" | .15 |
| Trexler Pneu. (pr) 1½" or 1½" 1½"-2" 30c; 2½"-2½"—60c | .45 |
| 2½" | 1.00 |
| 3" | 1.25 |
| 3½" | 1.50 |

**AA ACCESSORIES**

| | |
|---|---|
| Shut-off Valve (state engine) | .65 |
| E-Z Mixturemist | 1.00 |
| .004 or .006 x 2—35 | .35 |
| .004 x 2—50 | .50 |
| Flex Needle Valve (infant, spitfire torp Jr. & 049) | .50 |
| Flex Needle Valve (Cubs) | 1.00 |
| Spinners (state engine) | .80 |
| Presto Starter (state engine) | .95 |
| Prests (state engine) | .15 |
| Tanks (state engine) .50, .60, .75 | |
| Propgrips (pr) | .15 |
| Fuel Meter | .50 |

**MISCELLANEOUS**

| | |
|---|---|
| Batt. Box Pen. and Medium | .40 |
| Brass Tubing 1/16", 3/32", 1/8" | reg .50 |
| Copper Tubing ¼" OD, per ft. | .20 |
| Finger Guard | .45 |
| Fuel Pump ½ pt., pt. .69 qt. | .75 |
| Presto Dise Starter | .25 |
| Metal Motor Mounts, Sm.—36c; Lg. | .50 |
| Metal Pump Can | 1.75 |
| Needle Valve Exten. flexible | .25 |
| Neoprene Tubing, per foot | .05 |
| Spitfire Timer Valve | 2.95 |
| Transparent (reg. or AA) fit. | .15 |
| No. 70 oil, 3 oz.—25c; pint | .60 |
| Plastic Fuselage 19" set of 2 | .50 |
| Plug Wrench, 3-way—15c; 4-way | .25 |
| Plywood (6"x12") 1/32" | .20 |
| 1/16"—25c; 1/8"—30c; 1/4" | .35 |
| Silk, per yard | 1.50 |
| Socket Plug Wrench, 4-way | .60 |
| Spinner Starter | 6.00 |
| Universal Needle Valve | .50 |
| Flexible | .75 |
| Wirelon | 2.00 |

| | |
|---|---|
| Scamper Plastic 5½" 3p., 6" 4p. .25; 7" 6p. .45 10" 10p., 11" 8 p., .65 | |
| Super Spl. 8", 9", 10" 11" in 6 & 8 p. | .15 |
| Vaco 6" 3p. 4p. 7" 4p. 5p. 8" 5p. 6p. 9" 6p., 7p. (6"—25c; 7" & 8"—30c; 9"—35c) | |
| Also Ohlsson, Flo-Torque, Power, etc. | |

**RUNNING & TEST BLOCKS**

| | |
|---|---|
| E-Z Running Stand | 1.50 |
| Universal Running Blocks | 1.50 |

**METAL GAS TANKS**

| | |
|---|---|
| Dale Stunt Tanks—All Sizes | .65 |
| #1—1¼"x1¼"x1" #4—1¼"x1¼"x3" | |
| #2—2¼"x1¼"x1" #6—1¼"x1¼"x4" | |
| #3—2¼"x1¼"x2" #13—1¼"x1¼"x5" | |
| #16—2¼"x1¼"x3" | |
| Fromm: 1¼"x1" or 2 hor. or ver. | .50 |
| 1¼"x1"x2" Sq. | .50 |
| 1¼"x ½"x2" ; Wedge | .80 |
| 1¼"x1½"x2" ; End Stunt | .80 |
| Also Marco, Berkley, Acme | |

**IGNITION COILS**

| | |
|---|---|
| O.K. 1.50 Rogers | 2.00 |
| O.K. Twin 4.00 Wilco | 1.95 |

**CONDENSERS**

| | |
|---|---|
| Regular — .20 . . . Smith Metal | .35 |

**SPARK & GLO PLUGS**

| | |
|---|---|
| Arden Glo (V2 or V3) | .50 |
| Champion Glo V, V2, V3 | .75 |
| Champion V, V2, V3, VR1, VR2 | .50 |
| McCoy Hot Point | .65 |
| Ohlsson Glo (V, V2 or AA) | .65 |
| O.K. Glo-plug (V2 or V3) | .50 |
| Plug washers | .05 |

**IGNITION ACCESSORIES**

| | |
|---|---|
| 6 ft. Hook-up wire | .25 |
| Arden Booster Jack | 1.25 |
| Austin Booster Plug-in | .30 |
| Midget Switch: slide—.25 Turn | .30 |
| Ohlsson Snap-Pack | .35 |

**PROP SPINNERS**

| | |
|---|---|
| 1½"-.85c; 1¾"-.90c; 2"-.95; 2½"-1.10 | |
| 3" Needle Nose 1½" dia. | 1.15 |
| 2" | 1.30 |
| Plastic 1½" | .50 |
| Scamper Plastic 1½", 1¾", 2", 2¼" | .45 |

**IGNITION ACCESSORIES**

| | |
|---|---|
| 6 ft. Hook-up wire | .25 |
| Arden Booster Jack | 1.25 |
| Austin Booster Plug-in | .30 |
| Midget Switch: slide—.25 Turn | .30 |
| Ohlsson Snap-Pack | .35 |

**PROP SPINNERS**

| | |
|---|---|
| 1½"-.85c; 1¾"-.90c; 2"-.95; 2½"-1.10 | |
| 3" Needle Nose 1½" dia. | 1.15 |
| 2" | 1.30 |
| Plastic 1½" | .50 |
| Scamper Plastic 1½", 1¾", 2", 2¼" | .45 |

**DOPES** (Cont'l U.S.A. Only)

Aerogloss (20c and 60c sizes) Fillercoat, Cement, Plastic Balsa, Cessna Green, Cessna Gray, Orange, Yellow, Corsair Blue, Curtiss Blue, Fokker Red, Black, Lambert Gray, Aluminum, Stinson Red, Stinson Green, White, Cream, Maroon.

COMET (10c and 25c sizes) Cream, Green, Gray, Red, Gloss Top Coat, Horizon Blue, Black, Midnight Blue, Orange, Maroon, Gold, Sanding Sealer, White, Yellow.

Speed-o-lag (10c and 35c sizes) Aeronca Orange, Army Yellow, Aeronca Yellow, Banana Liquid, Black, Gray, Chocolate Brown, Cub Blue, Cub Cream, Cub Green, Cub Yellow, Gloss Top Coat, Insignia Blue, Insignia Red, International Orange, Metallic Blue, Olive Drab, Sanding Sealer, Silver, Stinson Green, Taylorcraft Cream, Taylorcraft Yellow, Tennessee Red, Maroon, Waco Blue, White.

CLEAR DOPE Aerogloss 20c and 60c; Comet 10c and 25c; Speed-o-lag 10c and 35c.

THINNER Aerogloss 20c and 40c; Comet 10c and 25c; Speed-o-lag 10c and 35c.

Plus Many Others

**PYLON control lines**

| | |
|---|---|
| .008, .010, .012, .014, .016 dia. 2-52' lines | .60 |
| .008, .010, .012, .014, .016 dia. 2-70' lines | .75 |
| Flexible 2-52' 1.50; 2-70' | 1.95 |
| Pylon Control line Reel | 1.39 |
| Pylon Plastic Handle 5" or 6" | .89 |
| Reel Pal Reel | 1.89 |
| Simplex Handle & Reel | 1.50 |
| Stunt Bellcrank & Elev. Horn | .35 |
| Swivels, small 15c pr.; large | .20 |
| Tommy Handreel | 1.75 |
| U Reely Contr.—7.50; cable | 2.00 |
| U-Reely Remote | 12.50 |
| Vaco Bellcrank | .39 & .98 |
| Wood Control handle | .98 |

## MODEL BOATS

| | |
|---|---|
| Chris-Craft 28" C-D | 6.75 |
| Chris-Craft Express 25" BCD | 5.75 |
| Chris-Craft Runabout 25" BCD | 6.25 |
| Disco 29" C-D-E | 6.25 |
| Owens Yacht 28" B-C-D | 6.25 |
| Vinyard 26" BCD | 6.25 |
| Dumas Electric Drive Unit for 6 above ships | 4.00 |
| Buckeye prefab. 17" A-B-C | 4.95 |
| " Cabin Cruiser 17" ABC | 5.95 |
| C.C. Riviera . . 12" AA | 2.98 |
| Plus Many Others | |

## U-CONTROL ACCESSORIES

| | |
|---|---|
| Adjustable Push Rod set | .25 |
| Bellcrank 2" or 3"—10c, 4" | .15 |
| BERKELEY control lines | |
| .008, .010, .012: 2-50' | .50 |
| .008, .010, .012, .014 2-70' | .65 |
| .008, .012, .016: 2-150' | 1.50 |
| Stranded .015, .021 55' 1.60; 70' 1.25; 200' | 3.80 |
| Berkeley Metal Flight Reel | 1.25 |
| Berkeley Metal Handle | 1.00 |
| Elevator control horn; Vaco | .30 |
| Elevator hinges 4 for | .10 |
| E-Z Plastic Control Handle | .85 |
| Flat Lead-in wire AA or A-B 3 ft. | .15 |
| Instant-Use Handle, 5 or 6" | .10 |
| Loxon Clips A. B. C or D Pr | .10 |

## THIMBLEDROME

| | |
|---|---|
| Con. 15 or .099 Engine only | 8.50 |
| Con. .199 Engine only | 9.95 |
| Con car ready to run with engine | 13.95 |
| Con Dirt Track | 2.49 |
| Champion car ready to run with Con Engine | 19.95 |
| Thimbledrome Race Car | 4.95 |

## RACE CARS

| | |
|---|---|
| Half-pint . . . . . (AA) | 2.95 |
| McCoy Midget | 10.95 |
| McCoy Complete | 19.95 |
| Ohlsson Complete | 19.95 |
| Tornado Complete | 9.95 |

## SPECIAL SOUVENIR BARGAIN

The manufacturer of a well-known engine, after selling 30,000 at $9.95, has decided to go out of production! We have his remainder of 1,000 complete sets of finished and unfinished castings and parts: Cylinder, piston, piston pin, connecting rod, needle valve, gas line, timer, crankshaft, crankcase, cam, etc., including screws, gaskets, nuts, etc.

You get a complete set, except spark plug and tank. An interesting souvenir of a model engine in the raw for your den or desk.

**No. J9 . . . '1.00 per Complete Set**

## SPECIAL BARGAIN IN PROPELLERS

**15 ASSORTED FOR $1.00**

We have purchased 50,000 assorted gas model propellers from the country's largest propeller manufacturer.

They are ALL PERFECT and range from Champion semi-finished (listing at $ for $1.00) to finished and lacquered props that sell up to 45¢ each regularly. Various pitches, in sizes from 7" to 14".

No selections, please, but we will send you a fine assortment of 15 for $1.00, if accompanied by an order for anything advertised in this magazine. MONEY BACK GUARANTY

**Propeller Sale—8 For '1.00**

We don't believe in hoarding, but you won't get a bargain like this anywhere else.

By making a tremendous purchase, AHC has acquired from Rite-Pitch a fine line of finely finished and lacquered high grade, square-tip propellers at a very low price and is passing the savings on to you. 8" dp.: 8" 6p., 9" 5p., 9" 6p., 10" 6p., 10" 8p., 11" 6p., 11" 8p., 12" 6p. 12" 8p.

| | |
|---|---|
| Stinson . . . .32" AA . . . . | 1.98 |
| Streamliner 26" B-C-D . . . . | 4.00 |
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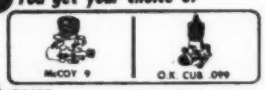


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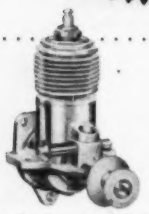

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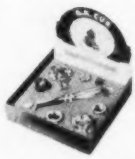

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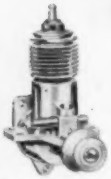

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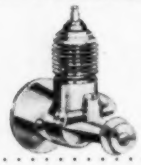

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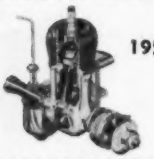

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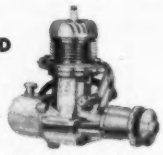

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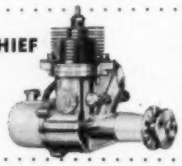

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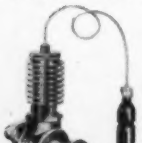

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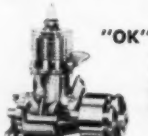

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MODEL AIRPLANE NEWS
JULY 1951

# tried $H^2O$?

Designed and built by engine-maker, Irwin Ohlsson, his *Pacemaker* seaplane was often flown by Irwin and American Airlines Chief pilot, Hap Russell.

***Poll of champions reveals all the important secrets of hydro flying. From indoor job to flying boat here is the dope on float sizes, rigging, planes that really perk.***

**by RICHARD EALY**

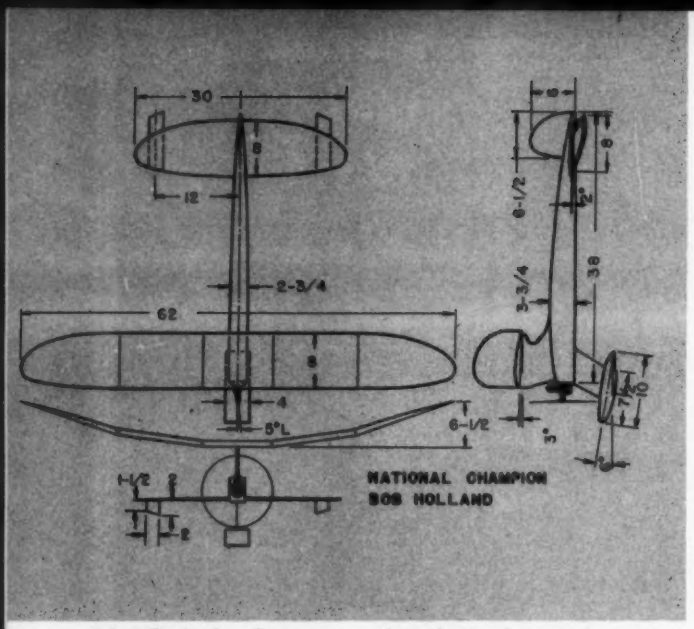
Those who are lucky to live in areas where there is a good water flying site can have a lot of fun flying hydro airplanes. Flying off land presents not much of a problem, but taking off water presents quite a challenge. Hull design must be considered. How this is licked is shown by the variety of successful ships shown here.

Contest ships have established the single large float in front and two small tail-tip floats as tops for quick get-away. All the pylon ships shown here were originally R.O.G. models which can be converted to R.O.W. in a very few minutes at the flying field. Sport fliers prefer the scale or semi-scale ship with two large pontoons for realism. This type of model takes a long run on the water and must get up on the "step" before taking-off. Both the cabin models shown here have been very successful and their floats are different enough to show there is more than one way to build this type. Landings are just as much fun as take-off with this type ship. They, too, are converted land planes.

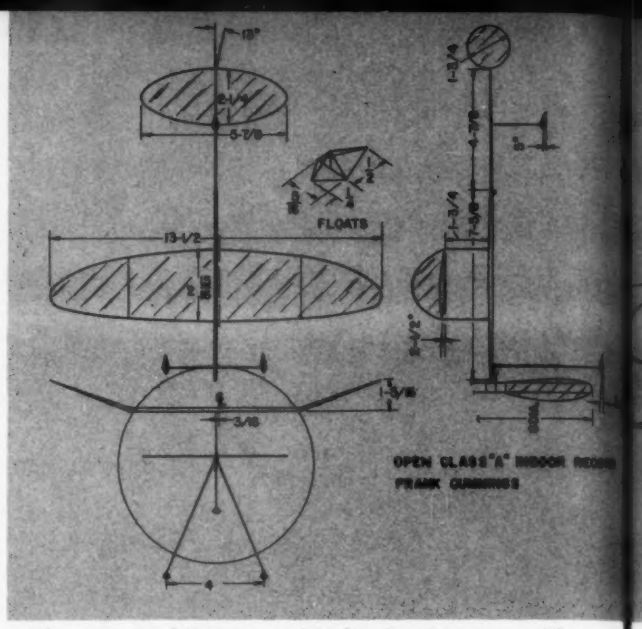
Outdoor rubber models, with two large floats in front and one small in rear, work very well. All three are built-up balsa and tissue covered. Indoor rubber models such as the baby R.O.W. have three flat-bottomed floats all same size and take off with practically no run. Dunking one of them would be curtains. Flying boats with full length hulls are really beautiful on the take-off. They too must get up on the "step" before breaking away from water surface.

The author wishes to thank all the swell builders who helped him in the preparation of this R.O.W. story.

*National Champion R.O.W.* Bob Holland of Sunland, Calif. won first place in the R.O.W. event at the 1948 Nationals, Olathe, Kans., with the ship shown here. It is a .19 Arden-powered pylon design with a single large float in front and two small floats attached to tail surface tips. This arrangement provides a wide based triangle sitting on the water so that the wing tips do not ground loop upon take-off. Main front float is flat on top, curves up on bottom to the front from the step, which is located two-thirds back. The step is about one-quarter inch deep. Float is 1-1/2" deep, 4" wide and 10" long. It is mounted with six degrees incidence. The tail floats are made with one right and one left side, due to the fact that they are beveled in cross-section. When viewed from the front, the inner side of the float is deeper than the outer side. This aids in taking off if the ship banks over, as the outer edge does not dig into water. These floats are each 8" long and 2" wide, In cross section they are 1-1/2" deep on the inner side and 1" deep on the outer side. In profile the floats are similar to an inverted airfoil with top of float being flat. They are mounted 2-1/2" below tail with nose of float being in line vertically with leading edge. All floats constructed of balsa. These floats are mounted at six degrees incidence. As a land plane, this model balanced 75 per cent back of leading edge. When floats were used, the c.g. shifted back slightly so that a heavier spinner backplate was used. Airfoil is a modified N.A.C.A. 4412 reduced to 10 per cent thickness and had three degrees incidence. Horizontal tail is a flat-bottomed airfoil with 7 per cent thickness and set at two



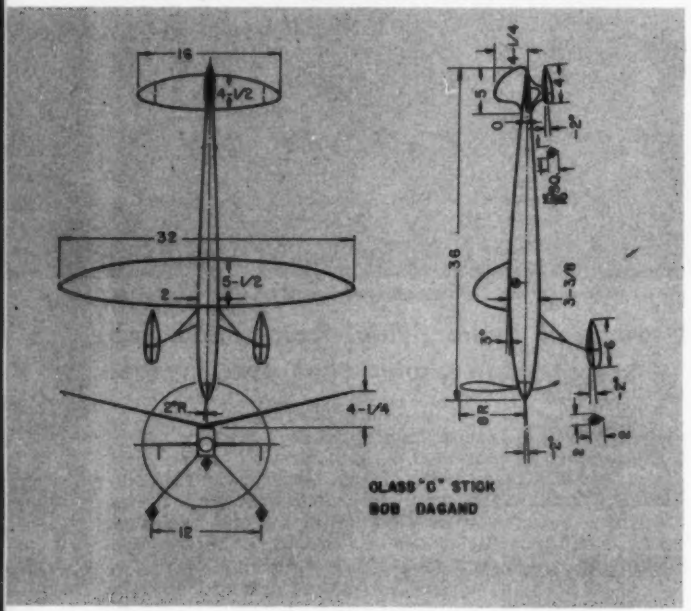

Bob Holland's three-float gear provides wide triangle support on water to prevent "ground" looping. Unique feature is the beveled rear floats.

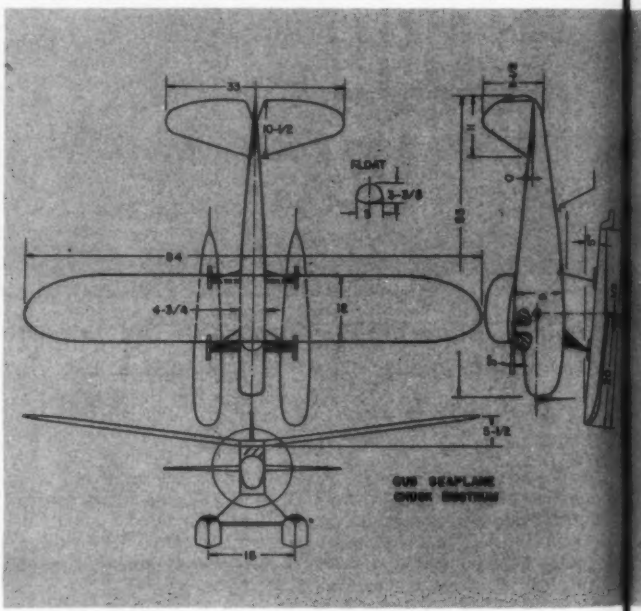



Indoor master Frank Cummings used tiny kite-shaped tissue-covered floats. Took off from 18" tank; oiled float bottoms eliminated carrying drops!

Kite-sectioned tear-drop floats feature Bob Gagand's racy rubber job which outflew both gas and land plane rubber models in a free-for-all contest.

Chuck Emstrum's seven-foot Cub has slim scale-type pontoons with rudders, sometimes runs for 150-200 feet on surface of glossy water.

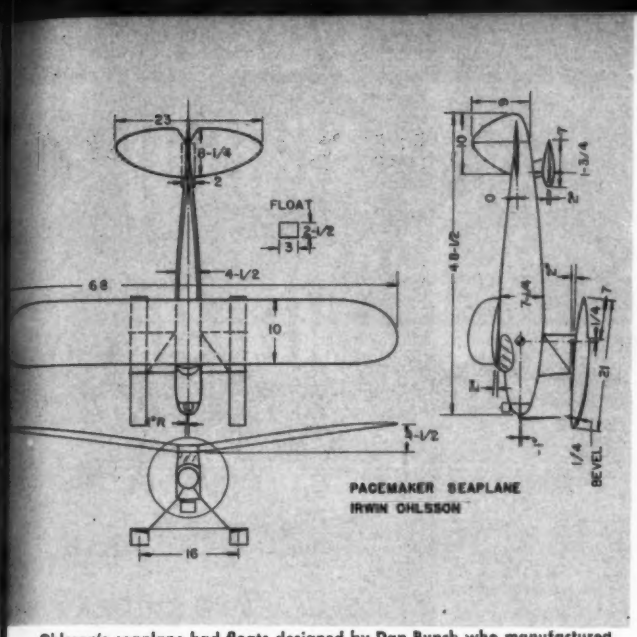



degrees incidence. Rudder is mounted straight ahead. Motor is mounted with five degrees left thrust to make ship circle left under power. No downthrust in motor. Left wing has two degrees wash-in (trailing edge down) at outer dihedral break. This resists the left turn under power so ship does not spiral in, and the increased drag of the tip causes ship to glide in left circles. Take-off is very short, depending on wind and water surface. Bob's ship climbs like a skyrocket and soars in flat left circles.

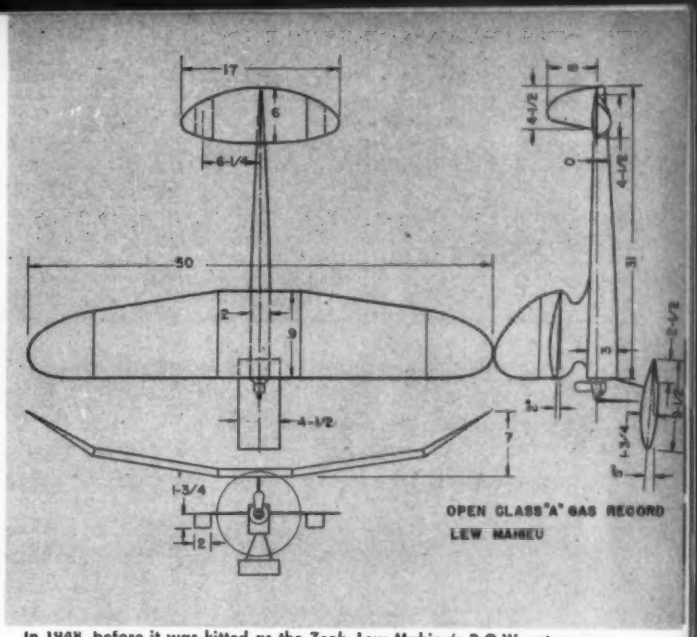
*World Record Indoor Class A R.O.W.* Frank Cummings' little R.O.W. shown here flew to a new World A record (13:5) in the Santa Ana blimp hangar. The indoor master made thorough preparation and had every step figured out in advance. A piece of pliofilm about 18" square was laid over a wood frame and water poured into this "tank." Needless to say, it did not need to be very deep. Then he proceeded to wind the motor to its maximum turns. Another of his well planned steps came to light in his assault on the record when he proceeded to oil the float bottom at the last second before take-off. This was to shed all the water inasmuch as every extra thousandth of an ounce would cut down the duration. Take-off was very short and the ripples left behind resembled that of a water-bug. Three identical floats built-up with light balsa frame and covered with tissue. In plan form they have a kite-shaped form being five-sixteenth of an inch wide and three-quarters of an inch long. In profile they have a flat bottom. Front floats are attached to balsa struts which are inserted into paper tubes mounted on the fuselage. Rear float mounted in same way on tail boom. All floats have five degrees incidence. Propeller is 8" diameter by 19" pitch and mike covered, powered by loop of one-thirty-second of an inch square rubber. Airfoil is thin, being only one-eighth of an inch at maximum camber, which is 40 per cent back of leading edge; c.g. here too. Weight is .0102 ounces complete.

*Class C Rubber R.O.W.* In a free-for-all R.O.W. contest held at Hansen Dam, Tu Junga, Calif., Bob Gagand's racy stick model outflew both gas and rubber models. Unfortunately the meet was not an A.M.A. sanctioned meet or



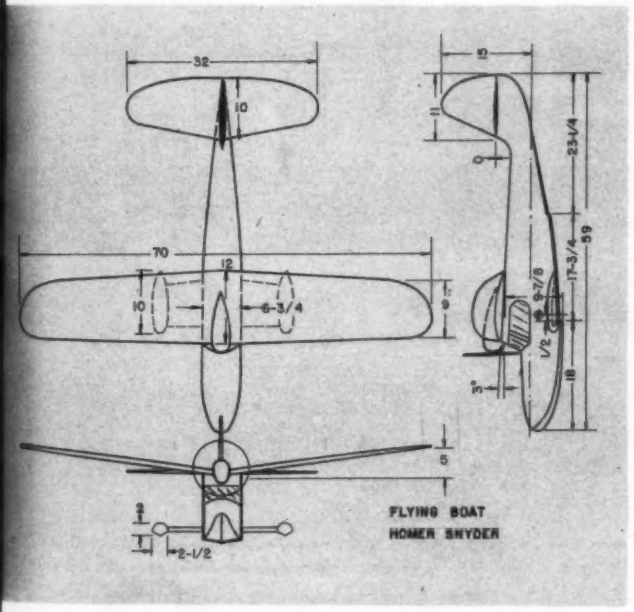

Ohlsson's seaplane had floats designed by Dan Bunch who manufactured Tiger and Challenger motors. Both model and floats once were in kit form.

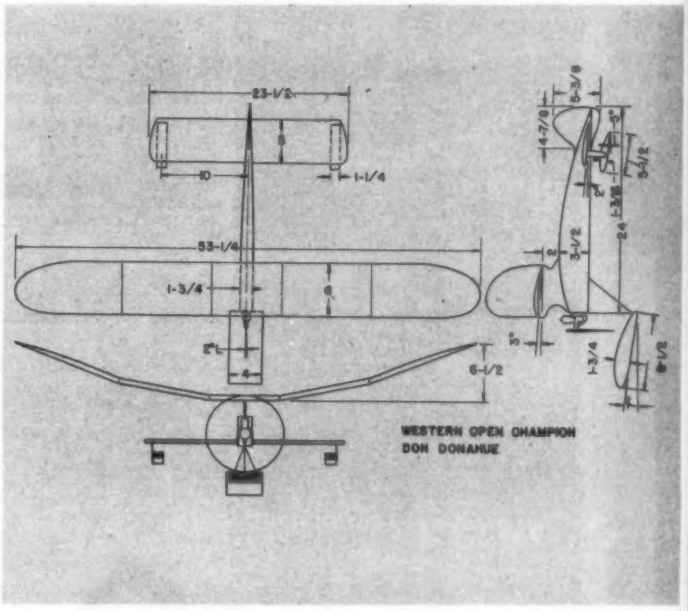
Typical of Portland, Oregon, construction, Homer Snyder's modified *Flamingo* has all-balsa wing and tail; entire ship is silk covered, watertight.




In 1948, before it was kitted as the Zeek, Lew Mahieu's R.O.W. set a national record. Featured removable floats. Floats require positive setting.

Secret of snappy take-offs by Don Donahue's Western Open winner is pontoon design developed by Los Angeles Thermal Thumbers. Wt. 11-1/4 ozs.



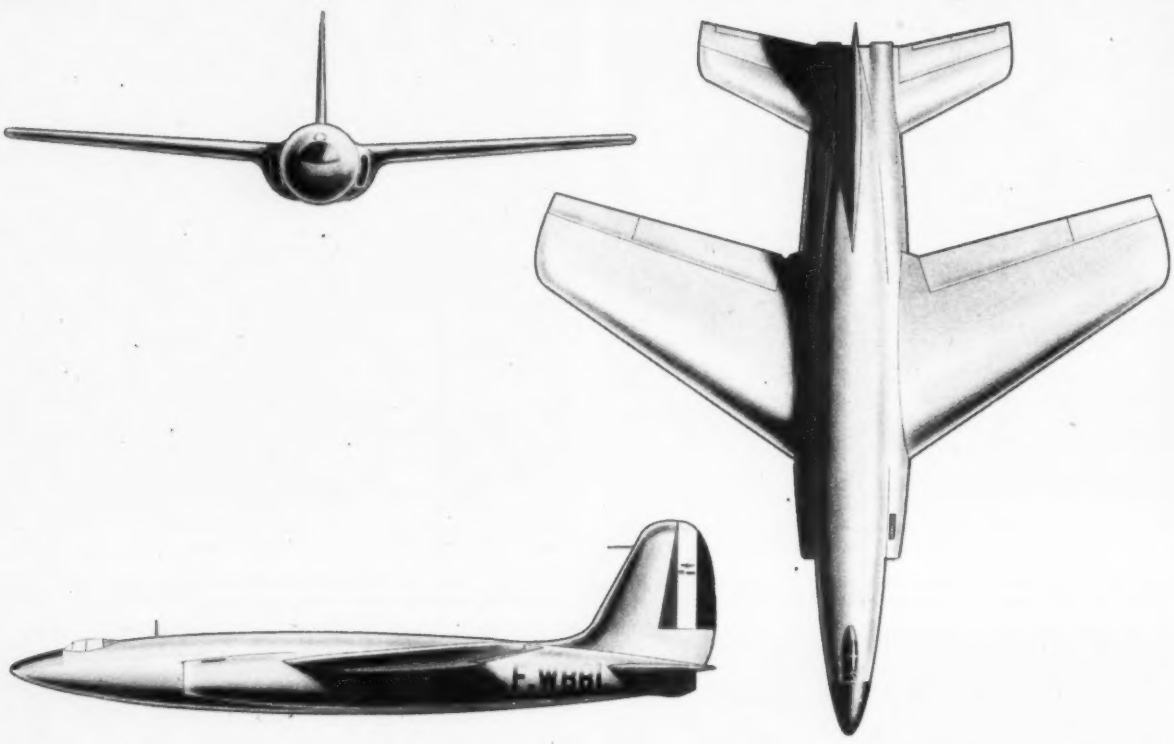

Bob's 6:10 total of three flights would have esablished a new record. The fuselage is a built-up rectangular frame that fairs nicely into a round nose. A balsa spinner houses the propeller mechanism. Propeller is a single bladed screw of 8" radius and counter-balanced. It is adjusted to two degrees down thrust and two degrees right thrust. Power is 26 strands one-eighth of an inch flat brown rubber. Wing and tail construction are very simple and light, using the Ritz type which incorporates one-eighth of an inch sheet balsa plan form. This is cut out, and cambered ribs added. Wing is mounted at three degrees incidence and uses a pop-up dethermalizer. Tail is set at zero degrees. Rudder one-sixteenth of an inch sheet balsa and mounted straight. Then a little right rudder is used by warping rear portion. There are two front floats of teardrop appearance. The bottom is deeper in the profile side so that in cross section it has a kite-shaped section. They are built up of sheet balsa for the outline and covered with tissue paper. Size of each is 6" x 2" x 2". Floats are mounted with two degrees negative as shown so that ship hops right off water with a run of only a foot. Main gear assembly is held on with rubber bands. A fin under fuselage serves the dual purpose of adding extra area which is necessary for R.O.W. and mounting rear float. The back float is similar to front ones only smaller. It is 4" x 15/16" x 15/16". This is also mounted at two degrees negative. A small sub-rudder is placed near each tail tip and underneath. Model flies in right turn under power and glides in right circles.

*Cub Seaplane.* Chuck Emstrum of Portland, Oregon, built this successful *Cub Cruiser* seaplane with a seven-foot wingspan and powered by an Orwick .64. It is three years old and has had hundreds of flights, being damaged only once when the left pontoon struck a water logged stick, upon take-off.

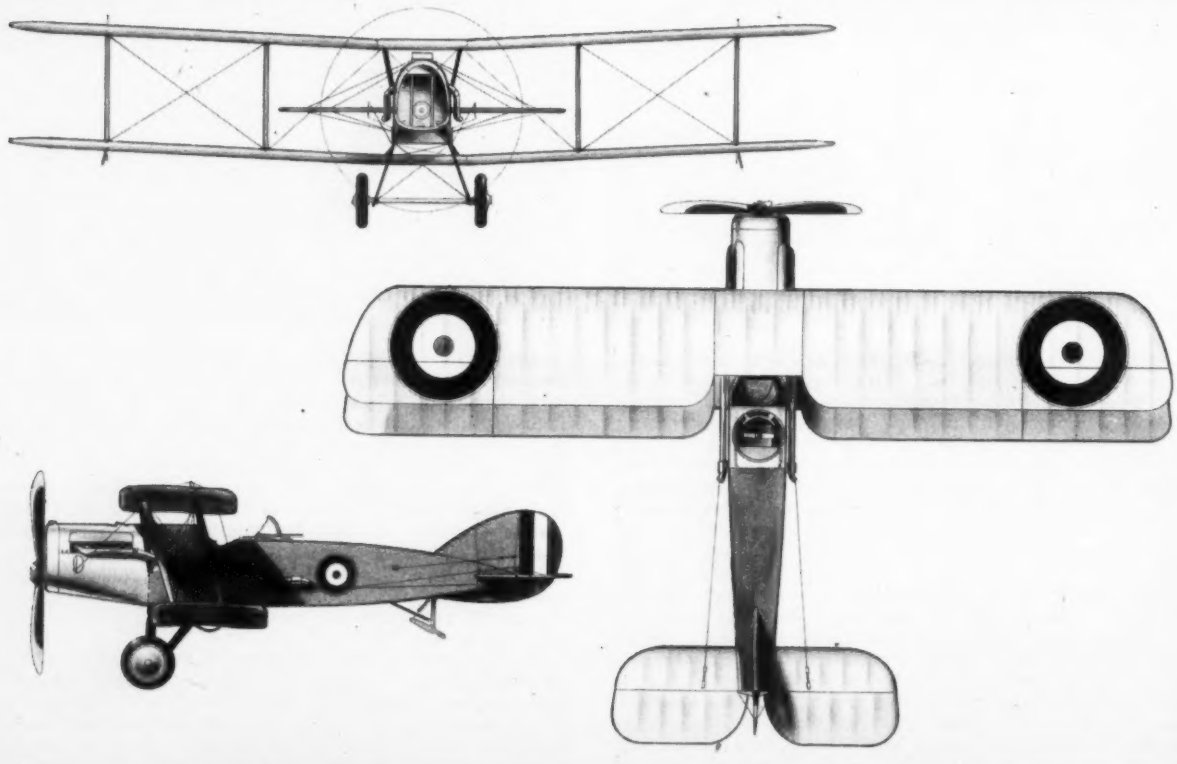
In "pre-pontoon" days, modelers in this area had to wait until crops were off the field before flying. So it was only natural that hydros were the answer if they were to fly all of the short four month season of good weather during spring.

Ships run to scale, semi-scale (*Continued on Page* 40)

## No. 7—Sud-Ouest SO 4000

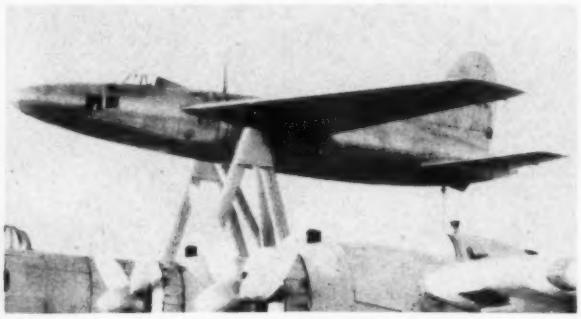


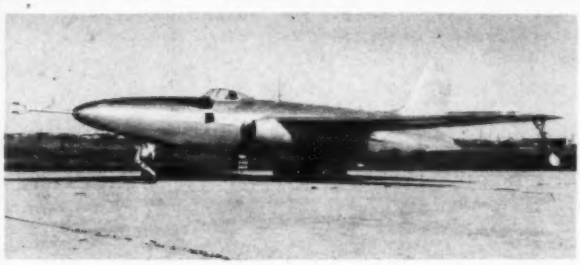
## No. 8—Bristol F.2B



# planes in the NEWS

Recently taken from storage, World War I *Brisfit* was assembled and flown by men who had worked with the famous fighters well over 30 years ago.

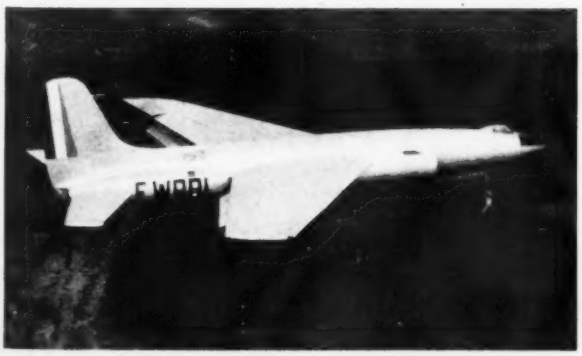


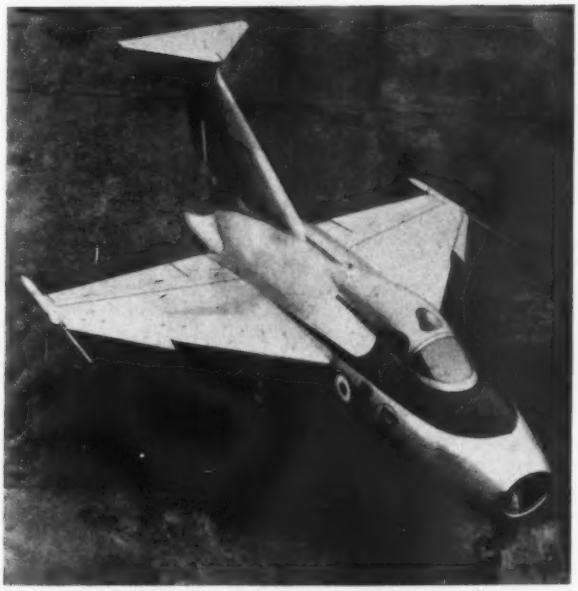


Top—This pick-a-back glider was the first of three steps toward French SO *4000*, sleek jet bomber which is reputed to be in the *Canberra* class.

Above—The single *Derwent*-powered version of the glider, the SO *M.2*. Note tandem tricycle gear and outriggers at either wing tip. Has slots.

Below—The SO *4000* has side-by-side Hispano-built *Nenes* with jet orifices either side of fin. Has nose-wheel, four-wheel gear with four wells.





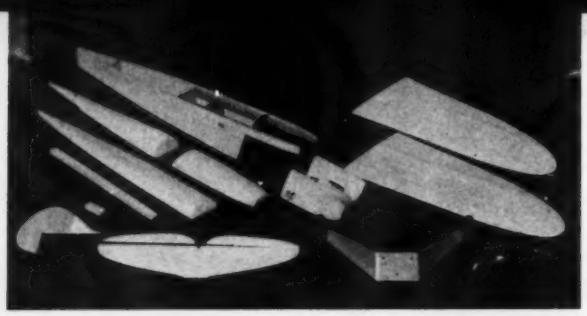
Experimental Fairey *Delta I* has temporary stabilizer to be removed.

## by DAVID ANDERTON

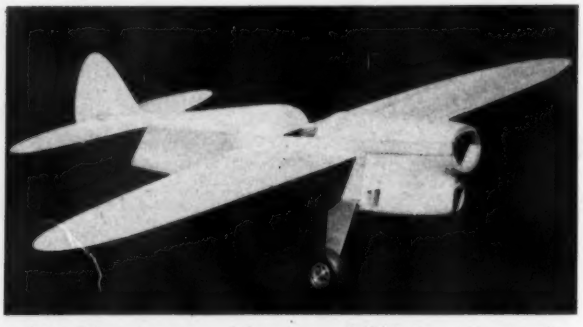
▶ Aviation is packed with sentimental and nostalgic memories of far-off battles and races and trans-Atlantic hops, and airplanes that had wire bracing and struts and two wings. Call it escapism if you want, and blame it on the increasingly unglamorous uses of the airplane. But escapism or no, a lazy June day is a wonderful time to sit and dream and read about the great airplanes of the past. In England, where worship of tradition reaches its peak, they have just brought an old fighter out of retirement.

Out of the mist at Filton airport, out of the historic past which made it one of the great military airplanes of all time, bounced a Bristol fighter. It jolted off the concrete runway onto the grass and then was swallowed up like a wraith into the white blanket over the field. This was the rebirth of that great two-seater of the first Word War—the Bristol *F.2B* biplane fighter—which took on the best German Imperial Air Service had to offer and beat them into the ground.

Rebuilt by Bristol for the (*Continued on page* 51)

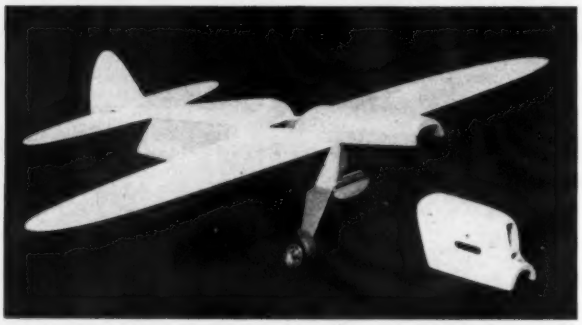


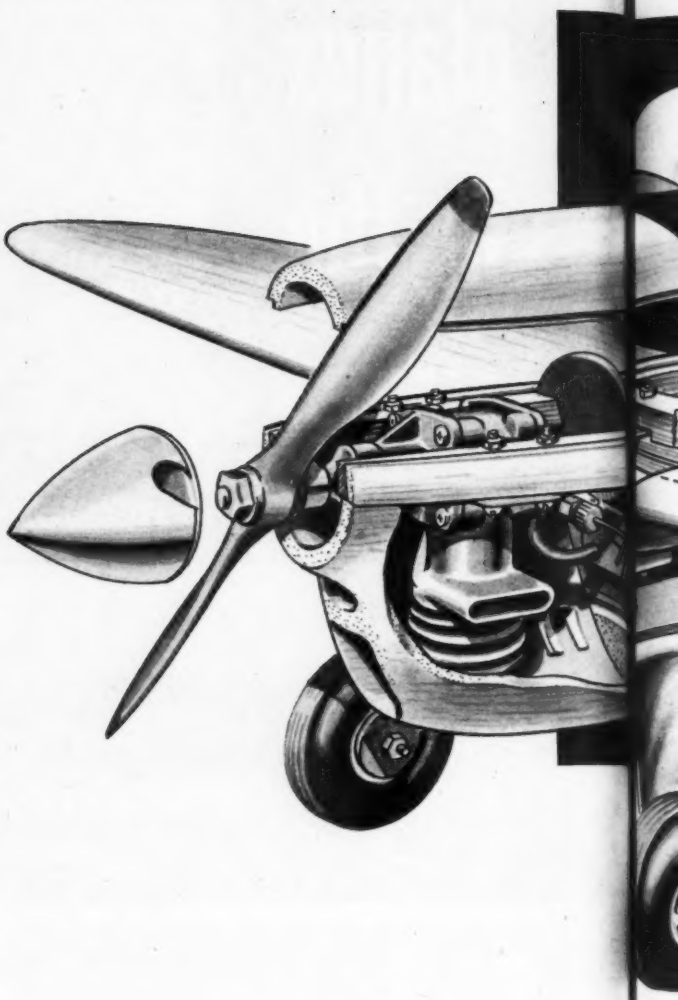
The proof of the pudding! Simple, sturdy, light, easy to build.



Sheet siding, plus top and bottom rounded blocks work out well.

The bottom cowl block drops away for quick access to the engine.

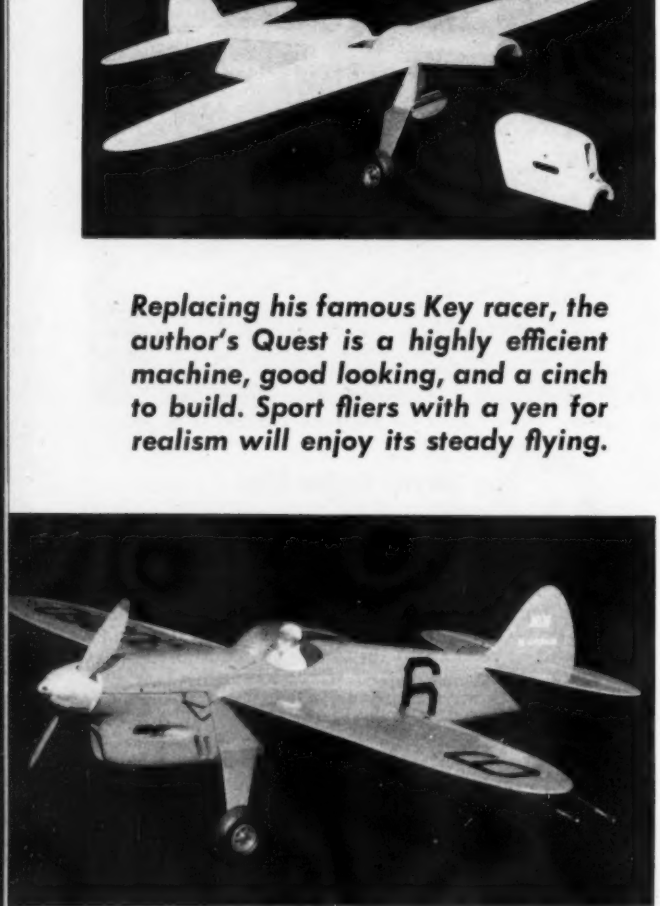




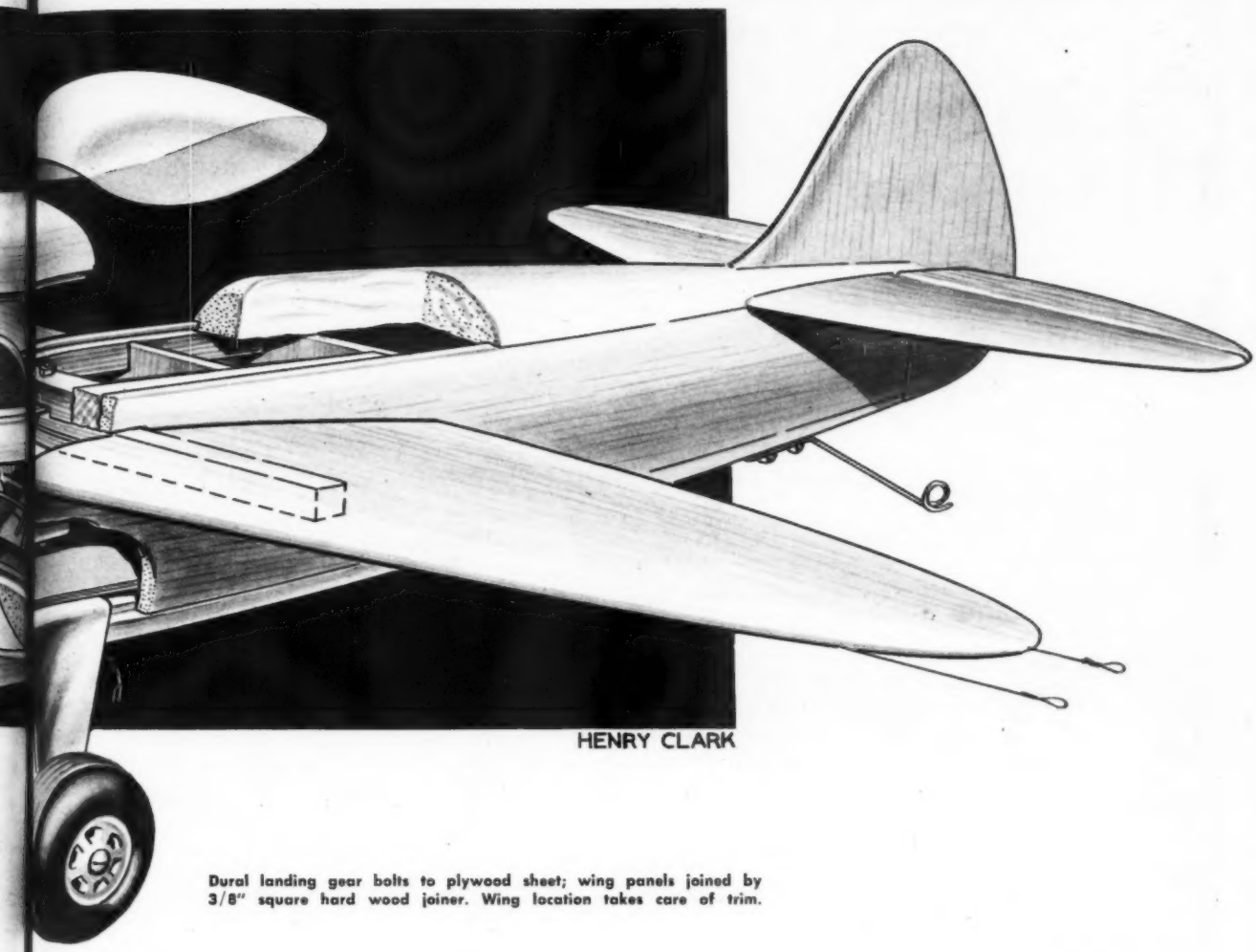
# storey's 51 team racer

by KEITH STOREY

***Replacing his famous Key racer, the author's Quest is a highly efficient machine, good looking, and a cinch to build. Sport fliers with a yen for realism will enjoy its steady flying.***



Contact! Average top of 70-75 mph gives 4 miles on 1 oz. fuel.



HENRY CLARK

**Dural landing gear bolts to plywood sheet; wing panels joined by 3/8" square hard wood joiner. Wing location takes care of trim.**

It's about this time each year that we begin to think of the "big" meets. What's new and what would be good for competition is uppermost in everyone's mind. Team Racing as an event is building a different type of interest and if you want to be in on this new fun, here is a model designed for the rigors of competition. Born from the experiences of long races, with the stamina to give good results for many meets, and having the weight-to-strength ratio necessary for optimum performance, the *Quest* will meet the stiffest demands.

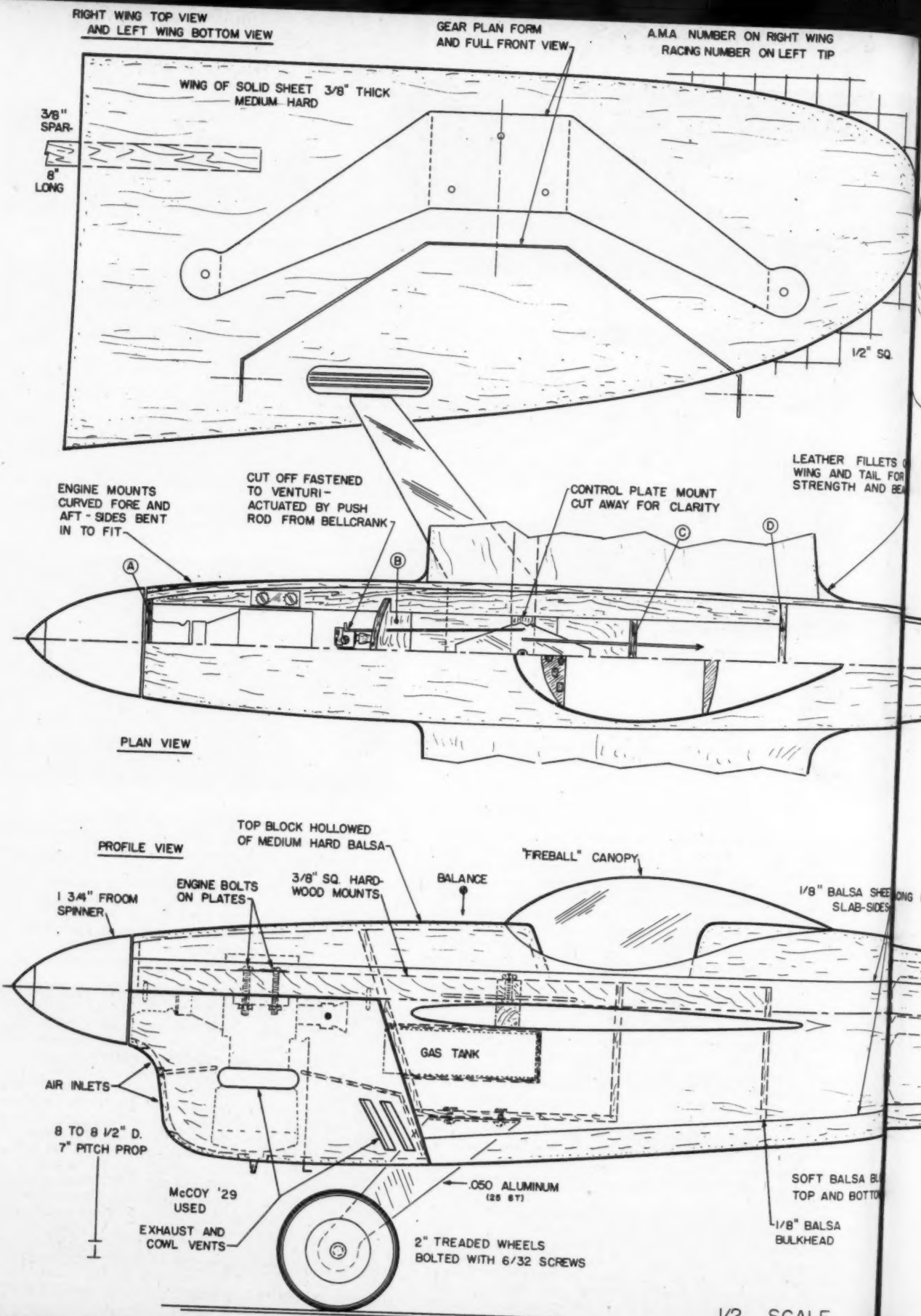
The plans given are half the size of the finished model. It will not be necessary to scale them up fully. Just transfer the dimensions required onto your working balsa for most of the parts. Squares are provided for the wing tips and tail surfaces so the correct sizes and shapes can be maintained when enlarged.

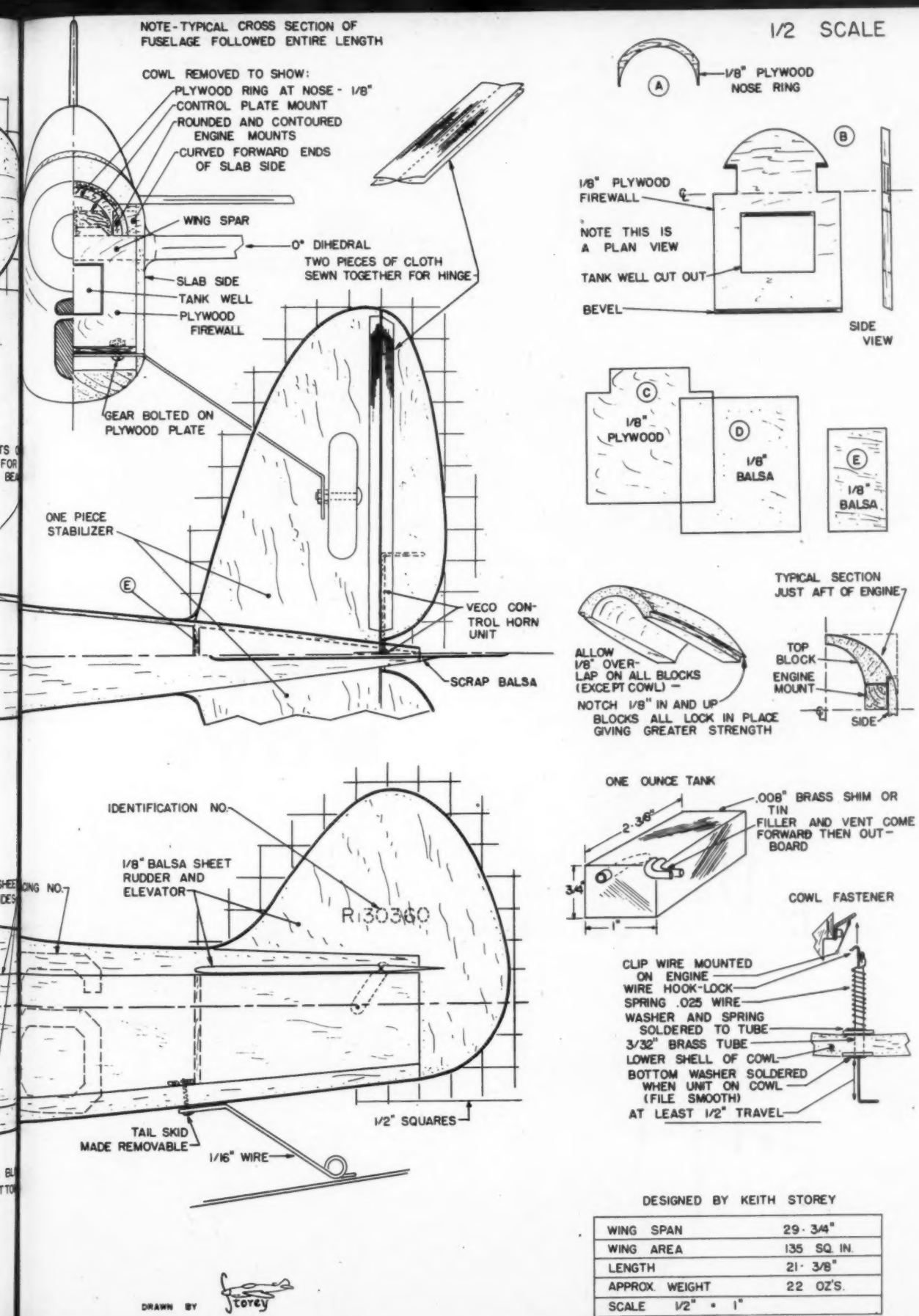
The *Quest* utilizes the strong type of slab side construction with blocks, top and bottom, for streamlining and roundness. This is a very practical way to make an inverted-motor airplane. To insure a good flier finish all the parts and test balance the model before gluing them in place. The proper balance and alignment are necessary for clean take-offs, good flying qualities, and controlled landings.

To begin construction, the fuselage sides can be drawn on the one-eighth of an inch balsa sheet. Cut them out and size together. Transfer the bulkheads the same way on the one-eighth of an inch plywood and balsa and shape as indicated. The engine mounts should be made of hard wood as they will have to take most of the load. Note how they are rounded in front to meet the 1-3/4" spinner and curved in slightly at the rear ends also. Sand or file them to shape. Drill the holes for the engine bolts, then solder the heads to two small tin plates. Glue the mounts to the slab sides first. It may be necessary to water soak the forward ends to form the proper bend. Clamp them in place until dry. Mark the position for each bulkhead and cement the sides and formers together. The landing gear platform is a one-eighth of an inch plywood plate cut to fit. Install it now. To make certain the fuselage will be straight, bolt the engine onto the mounts; then work in the bulkheads going toward the tail.

While this first assembly is drying, the other parts can be made. Enlarge the wing to full size. In selecting the wood for your model, pick fine grain but light stock for the wing. Its size alone can cause a large increase in the finished weight if hard and heavy material is used. Two pieces will probably be needed to obtain the root chord of 6-1/4". Glue the pieces together lengthwise, and when dry, cut in two halves. Trace and cut the outline for each panel. Form them to a symmetrical section slightly tapering in thickness toward the tips. Cut the slot for the spar. This wing brace is made from engine mounts material and is 8" long. Finish-sand the wings with fine paper. If you wish to hide the lead-out wires in the wing, cut the long grooves in the lower sides and cover them with thin sheet. Otherwise, make a small wing tip guide for the wires on top of the left panel.

Enlarge the tail surfaces to proper size, and cut them from the three-inch wide one-eighth of an inch balsa sheet. Two pieces will be necessary for the rudder. Round the leading and trailing edges. (*Continued on page* 41)

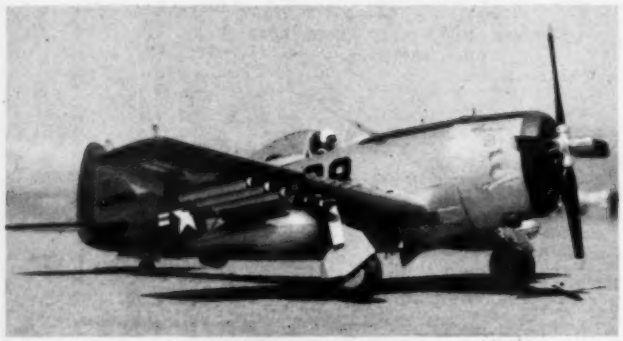

RIGHT WING TOP VIEW
AND LEFT WING BOTTOM VIEW
GEAR PLAN FORM
AND FULL FRONT VIEW
A.M.A. NUMBER ON RIGHT WING
RACING NUMBER ON LEFT TIP
WING OF SOLID SHEET 3/8" THICK
MEDIUM HARD
3/8"
SPAR-
8"
LONG
1/2" SQ.
ENGINE MOUNTS
CURVED FORE AND
AFT - SIDES BENT
IN TO FIT
CUT OFF FASTENED
TO VENTURI -
ACTUATED BY PUSH
ROD FROM BELLCRANK
CONTROL PLATE MOUNT
CUT AWAY FOR CLARITY
LEATHER FILLETS
WING AND TAIL FOR
STRENGTH AND
A
B
C
D
PLAN VIEW
PROFILE VIEW
TOP BLOCK HOLLOWED
OF MEDIUM HARD BALSA
"FIREBALL" CANOPY
1 3/4" FROM
SPINNER
ENGINE BOLTS
ON PLATES
3/8" SQ. HARD-
WOOD MOUNTS
BALANCE
1/8" BALSA SHEE
SLAB-SIDES
GAS TANK
AIR INLETS
8 TO 8 1/2" D.
7" PITCH PROP
McCOY '29
USED
EXHAUST AND
COWL VENTS
.050 ALUMINUM
(25 ST)
2" TREADED WHEELS
BOLTED WITH 6/32 SCREWS
SOFT BALSA
TOP AND BOTT
1/8" BALSA
BULKHEAD
1/2 SCALE

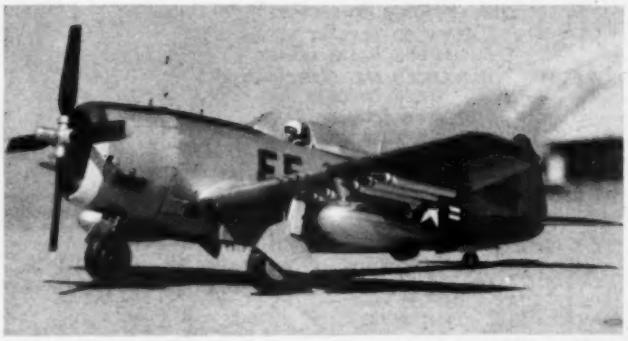


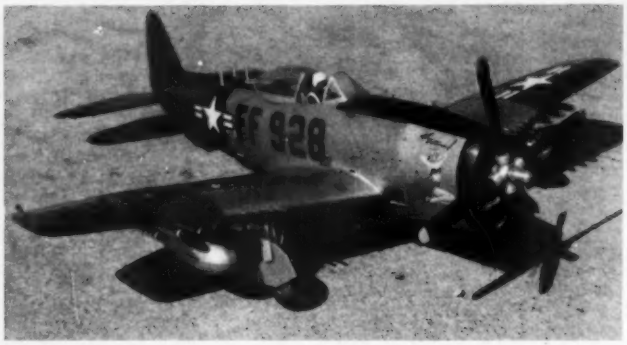

DESIGNED BY KEITH STOREY

| | |
|---|---|
| WING SPAN | 29-3/4" |
| WING AREA | 135 SQ. IN. |
| LENGTH | 21-3/8" |
| APPROX. WEIGHT | 22 OZ'S. |
| SCALE | 1/2" = 1" |

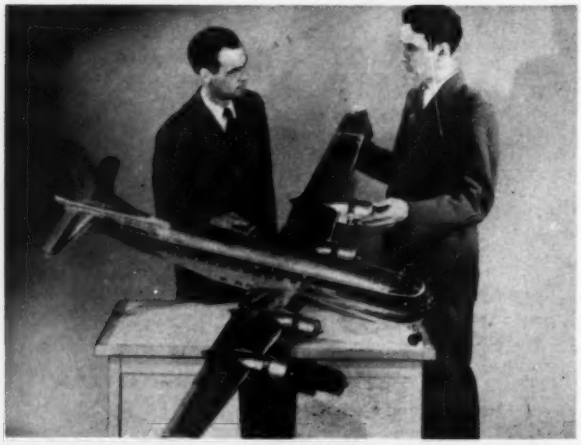
DRAWN BY Storey







*F-47*, Capt. Pelham Burnett, Salt Lake City, this month's $10 prize winner. A modified Miniature Model kit, has flight retractable gear, tail wheel by electric motor (juice through lines). Wheel doors close, canopy works. Alaskan Air Command colors. Cockpit detailed to glass-faced dials, oxygen equipment, even gas selectors. Atwood *Triumph* engine for power. Plane took 2000 hours and three years to build. Took four firsts, does 50 mph.



Amazingly accurate exact scale model Northwest Airlines Boeing *Stratocruiser*, by James McClure, right, takes second place subscription prize.

Below — *Baby Quaker*, by Harold Copas — Mrs. Copas stealing scene — has a Royal *Spitfire*, a 36 in. wing, 200 sq. in. of area, weighs 7 ounces.

# air ways

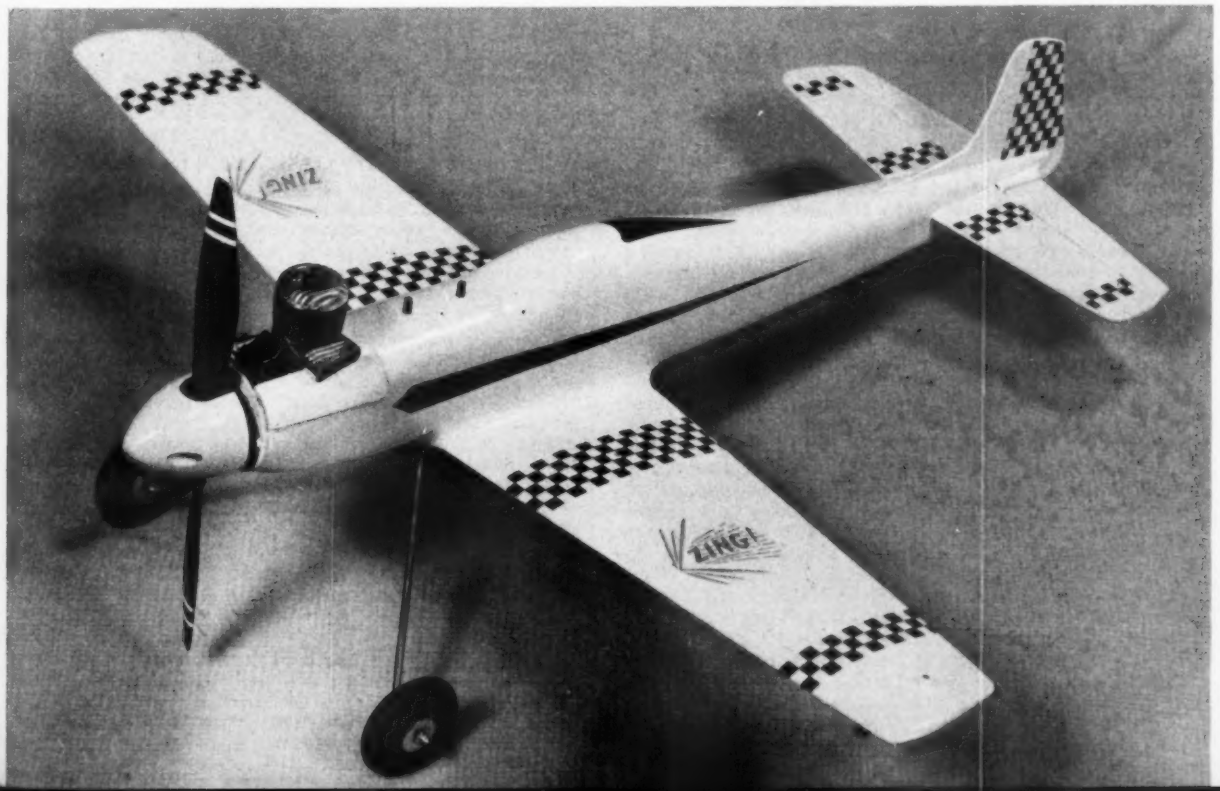
## *Outstanding models by MAN readers*

Cross flying wing, built by Capt. Nicholsen, now in Korea, and Major Stubbs, Benning, is stable, fine flier. Featuring scale type construction, it has over 1,000 p

Joseph DePaoli, of the 449 Fighter Squadron, made this North American *T-28* trainer — successor to beloved *AT-6* of World War II fame — from a Berkeley kit. Has a McCoy engine in nose.

Right — colorful *P-6E*, one of the most famous of the Curtiss Hawk series, is the work of D. R. Hartman, Argenta, Ill. Flying wires are kept taut by use of tiny coil springs, attached to each wire.

Subscription third prize goes to Ed Neece, Elkhart, Ind., for standout job in finishing Top Flite *Zing*. Power by an Ohlsson 29 on glow. Use of *Checkerboard* decals helps dress up.



The author fires up the *Sizzler 40* for one of its many flights; never did under 1:20 on 10 seconds.

# SIZZLER 40

by BOB BURAGAS

***For real performance your ship must save the "top of the bottle." What's that? A vital something that your present free flight gas model lacks.***

If you want a model that can chase its tail around the head of a pin and then lose most of its altitude when the engine quits, stop now—you're in the wrong department. If you can believe what you see at most contests, it looks as if the fellows are competing to see who can turn his model the tightest before it screws into the ground. Others are trying for super-high altitude with the result that the first five seconds of gliding flight is a vertical dive. These modelers put on a good show but the winner is always picked on the basis of the highest endurance. This means that a model should climb up there, roll out at the top, and take its good old time coming down. The answer to this is the *Sizzler*.

At first glance this model looks like any other contest ship. The difference in the design shows up in the application of the forces that are used in flight. A good powerful climb is the first requirement. To get this, every ounce of available engine thrust has to be put to use. This means that thrust offsets cannot be applied because they will produce slight loses in the effective thrust. As small as these loses might be they are the "top of the bottle" in value.

It seems very foolish to turn a model so tight that the slightest variation in setting is the difference between flying and spinning. For safety it makes more sense to leave the power turn wide. If some unpredictable event causes the model to turn tighter the result will not be a vicious spin.

Thrust offsets and tight turns are used to produce roll-outs at the top of the climb. By eliminating them, it seemed dead certain that complications would result. Extreme altitude is useless unless it is put to use through a proper pull-out. A trigger quick recovery is needed. Since lightly loaded ships can manuever in much smaller spaces than heavy trucks, all efforts were aimed at making a bigger ship with a very light loading. The only thing lacking was a force to make this ship manuever into a recovery when it went into an undesired attitude.

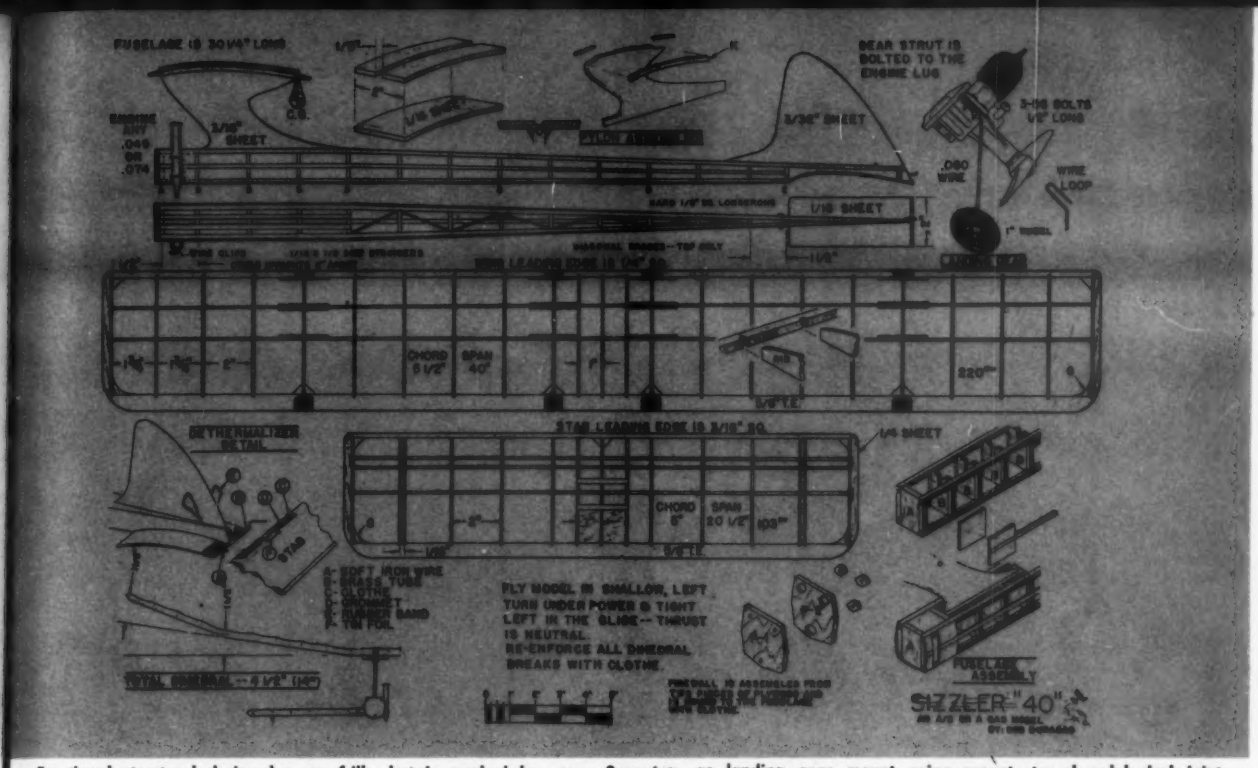
By applying a lifting tail, the effective wing loading was decreased even further. The airfoil section of the stabilizer was varied in thickness until it produced the required correction when the model went into high angles of attack. This means that the tail is still lifting very strongly when the wing is stalled. Sufficient thickness is added so that the climb angle becomes pre-set—in this case 45 degrees. When the power quits at the top of the climb, inertia keeps the model moving along its original flight path but at a diminishing speed. This speed reduction causes a stall and ends in lost altitude. With an efficient tail section the ship begins to nose downwards as the plane begins to lose speed. This eliminates the stall because the plane flies through the top of the climb. The light loading helps to make this occur within the minimum of space and time.

All of the requirements have been satisfied including the demand for endurance. The extremely light loading produces a slow, soaring glide. After seeing the towline boys turn green with envy, I felt satisfied that I had reached the solution. The flight isn't all appearance because "old man stop watch" has been reading just under two minutes on ten-second motor runs. I have yet to see under 1:20 on a ten-second run since the model has been adjusted. That's consistency for you too!

Clear off the kitchen table (when no one is looking) and let's go to work. The plan is a cinch to scale up because it is just straight line drawing. All curved parts have been drawn for you, full size, on plate 2. Trace these parts on some cardboard and cut them out—they'll aid in marking out the parts on balsa.

Build both fuselage sides together using very hard 1/8 square longerons. Add the rear fuselage sections (H) at this time. The fuselage bulkheads help to keep the fuselage true and supply added strength to the rear section. Check the drawing marked fuselage asembly to see how the front planking is added. Use 1/16 sheet to do this. The 1/16 x 1/8 side and bottom stringers are added before the second layer of sheet is applied. Taper this second layer from the stringer to the longeron to produce a semi-rounded effect. Diagonal braces are added to the top rearward of the pylon. Use 1/16 x 1/8 strip for this job and remember—the top only. Fill in the section which is under the rudder with 1/16 sheet. Having done all of this, sand the entire fuselage and round off the corners of the longerons.

Don't let the pylon throw you. It is simple, sturdy and warp proof. Use medium hard 3/16 sheet and laminate it to the proper width. The mounting platform is built up of two layers of 1/16 sheet with a provision in the top layer for a key way—check pylon assemblies. Two pieces of dowel are inlet into the pylon for hold down rubber. These dowels are held into the pylon by two strips of 1/16 sheet (K) which are cemented on the sides of the pylon. They also serve to supply a broader surface for the mount-




**Functional structural design has no frills, but is marked by many finepoints, as landing gear mount, wing mount, taped polyhedral joints.**

ing platform to cement to. Carve these strips so that they fair in with the pylon. When completely finished, the pylon is cemented into the slots provided in formers (B). The front of the pylon butt joins against former (A). A small piece of 1/8 sheet is used to fill in front section. This solidifies the pylon mounting.

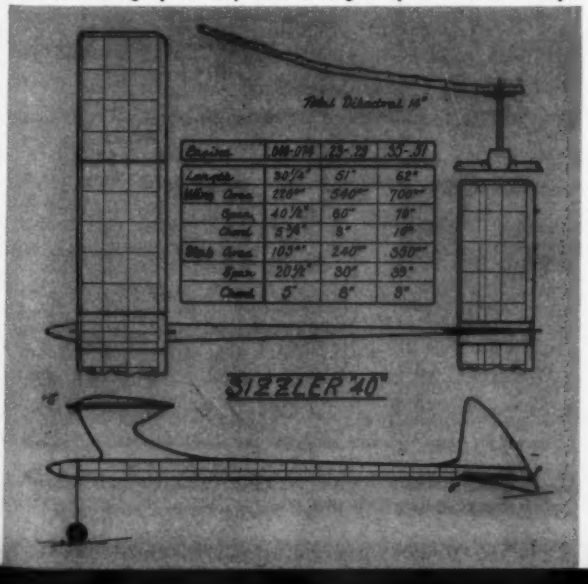
Engine mounting is accomplished through the use of bolts. The nuts are secured in the holes provided in (F-2). Bolt holes are made in (F-1) so that the nuts can be engaged. This entire unit is cemented to former (A) and is re-enforced with cloth wrapping. To change engines or to remove the engine for cleaning just remove the bolts. The nuts remain in the ship in proper alignment.

Note that the landing gear is bolted to the engine. Keep the open side of the loop on the outside of the engine to prevent the wire from unbending in a rough landing. The length of this gear is optional as it depends on the prop used and it should be of minimum size. For a Cub .049 the best prop seems to be a 5-5. If an .074 is used a 6-5 seems most desirable.

An eye dropper is used for a tank. So that it will mount flat against the fuselage, you will have to slot the beveled side lamination at the point where the tank mounts. This slot should be slightly narrower than the width of the dropper. Wire clips are used to hold this dropper secure. These clips are cut out of paper clips—use the large loop and don't spare the cement when attaching them.

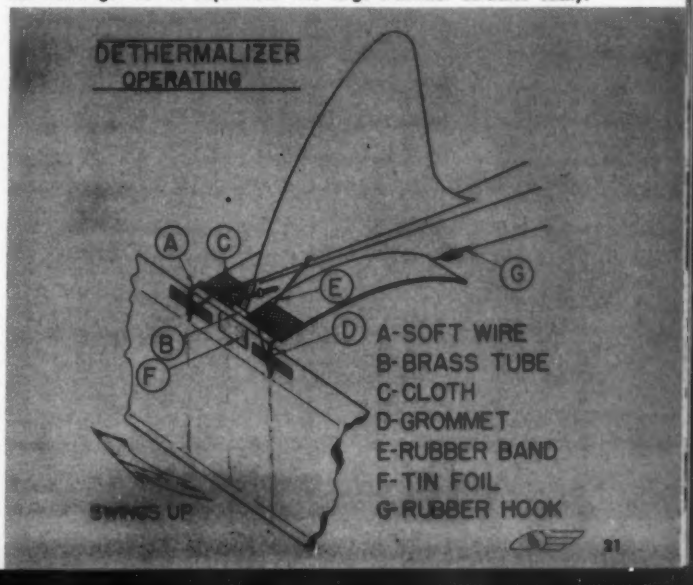
Simple, straight forward construction is used on the flying surfaces. Ribs are easy to mark and cut because there are only two sizes—one for the stab and one for the wing. A ball point pen simplifies marking out all outlines. In the wing planform there is a drawing that shows how the ribs are inlet into the leading edge of the wing. Cut all the slots in the leading and trailing edges about 3/32 of an inch deep. Slots are not cut at the dihedral breaks because the dihedral gussets must mount *(Continued on page 47)*

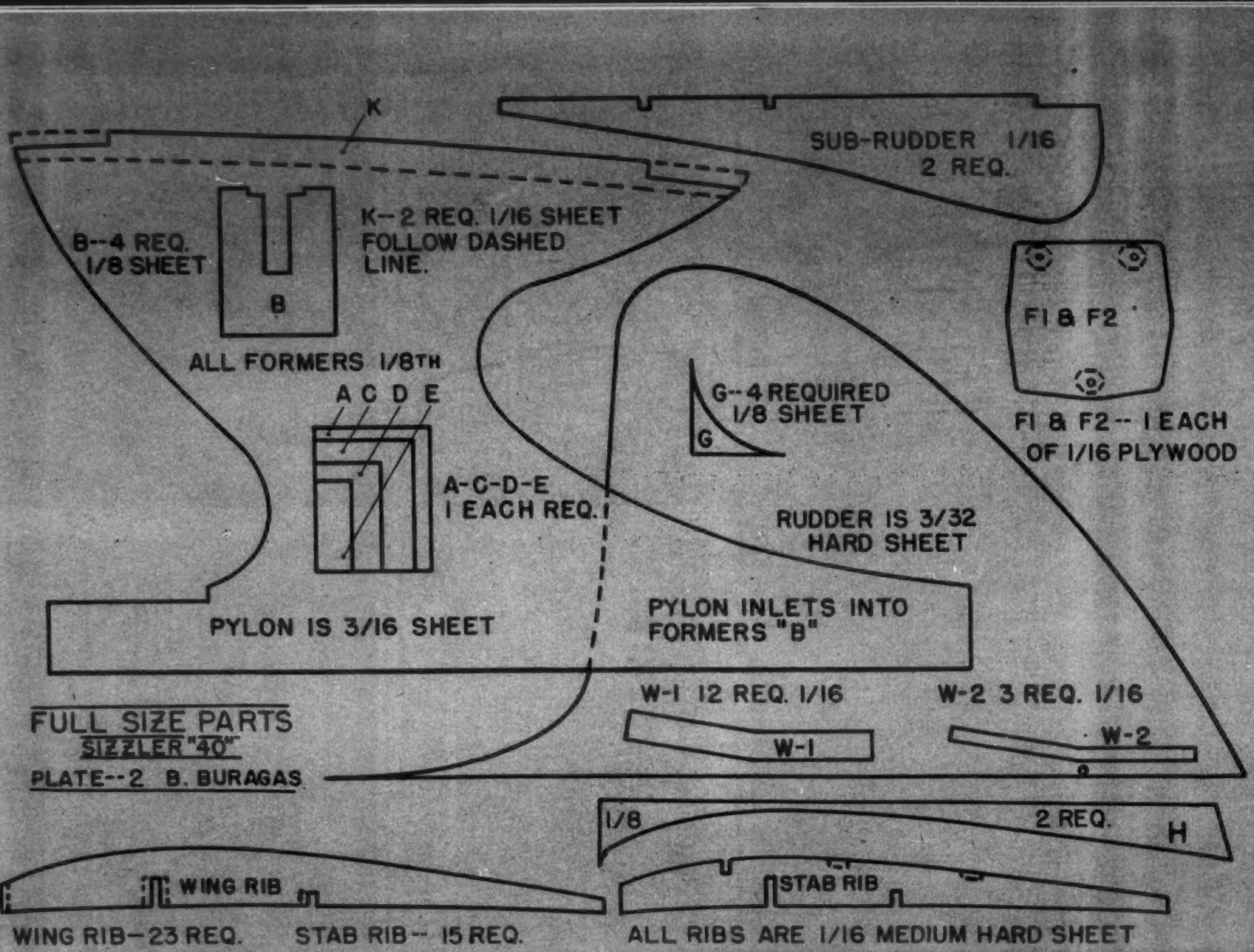
**Build a *Sizzler* for each event, using this handy three-view and data table for scaling up for any class of engine up to Atwood *Triumph*.**




| Engine | .049-.074 | .23-.29 | .35-.51 |
|---|---|---|---|
| Length | 30 1/2" | 51" | 62" |
| Wing Area | 220 sq in | 540 sq in | 700 sq in |
| Span | 40 1/2" | 60" | 70" |
| Chord | 5 3/4" | 8" | 10" |
| Stab Area | 103 sq in | 240 sq in | 330 sq in |
| Span | 20 1/2" | 30" | 39" |
| Chord | 5" | 8" | 9" |

**Something new in dethermalizers! One good feature is that fixed fin can never get out of adjustment. The large stabilizer detaches easily.**






MODEL AIRPLANE NEWS • July 1951

# official news

***National Events announced • New committees • New national records and dope on builders, model and powerplant • FAI International Records • Club activities • Contest calendar.***

**by RUSS NICHOLS and CARL WHEELEY**

Working closely with Ray Matthews, AMA Contest Board Chairman, AMA Headquarters has set up the competitive events to be run at the National Model Airplane Championships, July 23 through 30, NAS, Dallas, Tex. They are: Indoor Hand-Launched Glider; Indoor Rubber-Powered Stick; Indoor Rubber-Powered Cabin; Outdoor Unlimited Rubber; Outdoor Wakefield Rubber; Towline Glider; Free Flight Gas Classes AA, A, B, and C; Free Flight Gas R.O.W.; Rubber-Powered Flying Scale; Outdoor Hand-Launched Glider; Radio Control (including U. S. Navy Radio Control Bombing); Controline Speed Classes A, B, C, D, and Jet; Controline Precision Acrobatic; Controline Flying Scale; Team Racing; U. S. Navy Carrier; PAA Load Classes AA and AB; and Pan American Cliper Cargo. Since the PAA Clipper Cargo is an experimental one, no points will be given toward championship trophies for placing in this event.

Housing for male contestants, as in the past few years, will be aboard the Naval Air Station in Navy Barracks. Arrangements are being made for contestants to be fed in the Navy Mess Hall for the entire contest for a very nominal charge.

Named by the Dallas Exchange Clubs as Contest Director is Maurice Teter of Dallas. Requests for information should be adddresed to either Maurice Teter, 2025 Abrams Rd., Dallas, Tex., Jeff Dickey, Contest Chairman, Dallas Power & Light Co., Dallas, Tex., or AMA, 1025 Connecticut Ave., Washington 6, D. C.

*Committees*—As reported to you last month, AMA President, Ken Held, has named the 1951 Advisory Committees. The Controline Speed and Radio Control Advisory Committees were listed last month and the others follow:

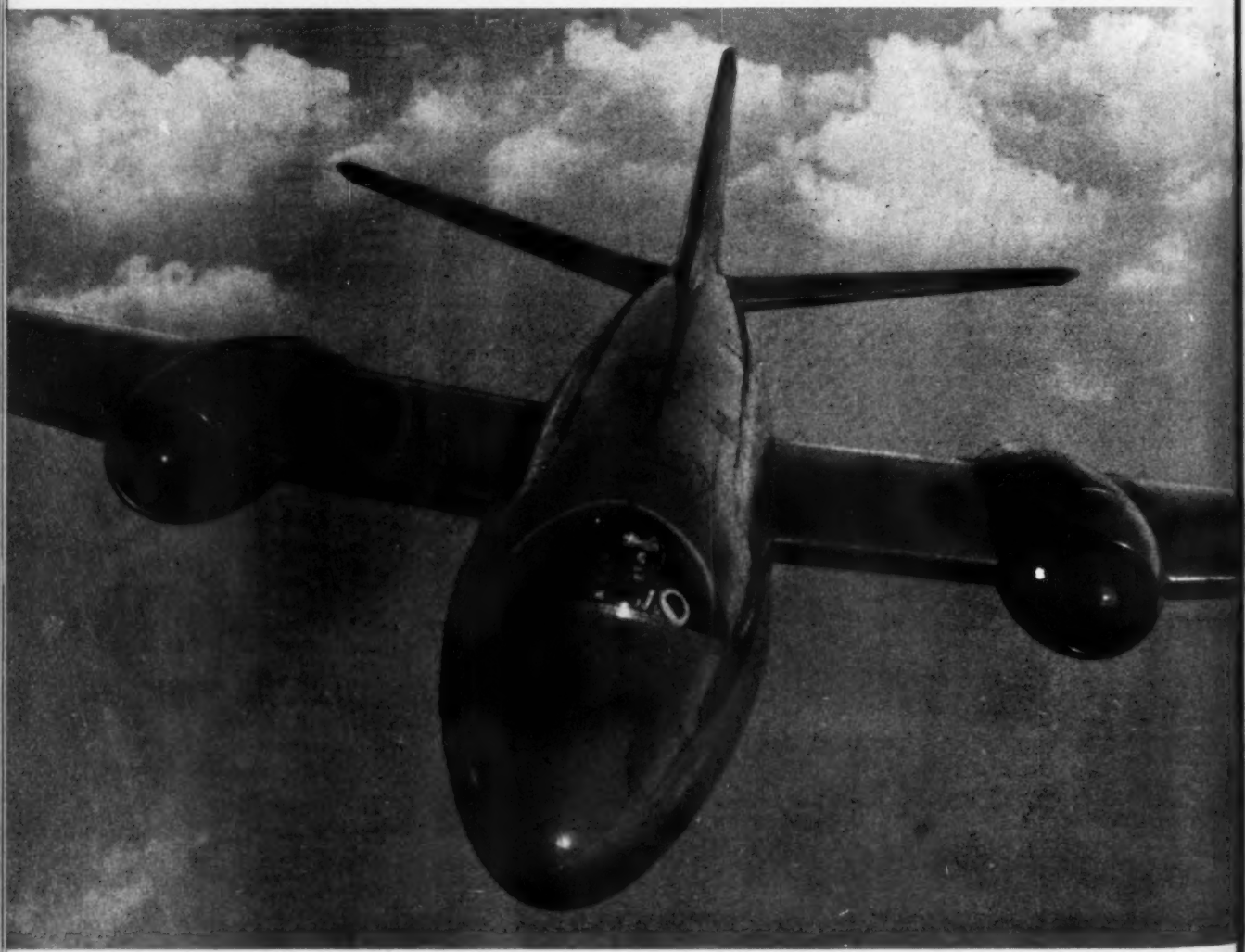
*Free Flight Rubber Advisory Committee*—Dick Everett, Chairman, 4621 55th Street, San Diego, Calif.; Mrs. June Dyer, 316 Monterey St., Box 14, Brisbane, Calif.; Merrick Andrews, 86-02 63rd Drive, Forest Hills, L. I., N. Y.; Don Franklin, 3502 N. Main St., Royal Oak, Mich.; Bob Holland, 10214 Eldora Ave., Sunland, Calif. *Controline Precision Acrobatics (Stunt) Advisory Committee*—Earl F. Witt, Chairman, Box 134, Lakeview, Wash.; George E. Wilson, 153 South Grove St., East Aurora, N. Y.; Lou Andrews, 39 Wheelock Ave., Norwood, Mass.; Walter Stevenson, 16630 Winston, Detroit 19, Mich. *Flying Scale Advisory Committee*—Frank C. Smith, Chairman, Room 909, 230 N. Michigan Ave., Chicago, Ill.; Nelson Farley, 1143 E. Forest, Ypsilanti, Mich.; David Lefebvre, 142 E. 55th St., Seattle 5, Wash.; Richard Smith, 104 Poplar St., Bangor, Me. William Winter, Model Airplane News, 551 5th Ave., N. Y., N. Y. *Free Flight Gas Advisory Committee*—Leon Shulman, Chairman, 1314 Sunnyfield Dr., Linden, N. J.; Dennis Davis, 2318 Broadway, Lubbock, Tex.; Sal Taibi, 4339 Conquista Ave., Lakewood, Calif.; Frank Cummings, 1664 W. 36th Place, Los Angeles 7, Calif.; Henry Struck, Hamburg, Conn.

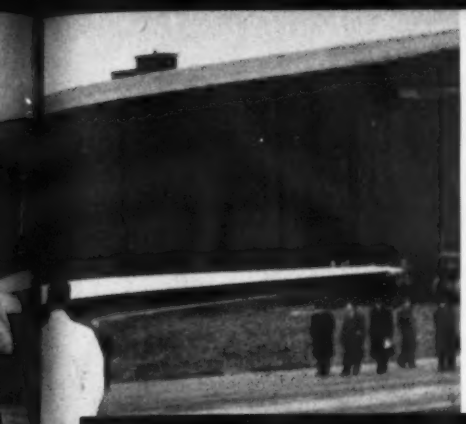
At the end of this article, you will see a procedure chart showing how AMA rules are made and changed from start to finish. Of main importance is the proper routing of your ideas and proposals. These should be sent in writing to either or all of the following: local Contest Board Member, AMA President, AMA Headquarters, and the appropriate Advisory Committee. From there, the proposal is on its own, depending upon its merits as to whether or not it will be accepted.

*Southeastern Regional Meet.* (Continued on page 52)

**What's in a name? The *Canberra* got its name officially from Prime Minister R. G. Menzies, of Australia, after city of the same name. Australia expects to build *Canberras*, as well as the firms of English Electric, Short, Handley Page and Avro in Great Britain, and Glen L. Martin in the United States.**

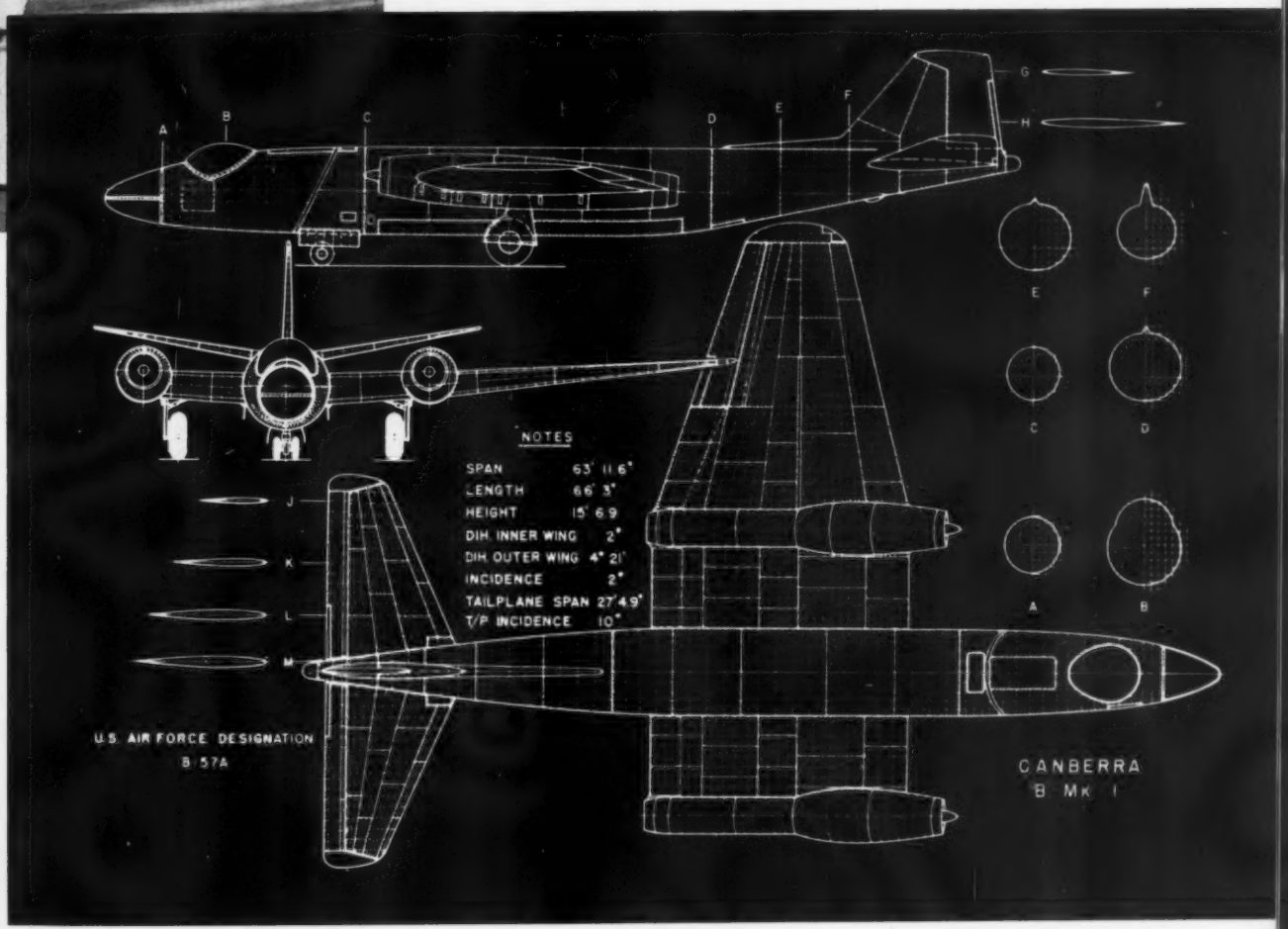
**Termed one of the fastest bombers in existence, the *Canberra* has pressurized nose section for crew and variable incidence tail for near-sonic flight.**





# canberra

## The Plane on the Cover




***A big gun in allied air fleet is the British Canberra Avon-powered twin-jet bomber, to be built by Britain, Australia and the United States. It is extremely maneuverable.***

Now and then someone builds a plane the whole world talks about. Even before they see combat, these planes of destiny obviously are marked to make history. The English Electric-designed *Canberra* is such an airplane. How good is the *Canberra*? Good enough also to be made in England by that trio of World War II bomber builders, Short, Avro, and Handley Page and, in this country, by Glenn L. Martin.

When so much attention focuses on any airplane, you can bet it has world beating performance. The kind of performance the *Canberra* possesses is suggested by its fighter-like lines. It is built more along the line of a *Gloster Meteor* than a Boeing *B*-47. Compact, light, and with stubby wings that step up its rate of roll, the *Canberra* is powered by two of Rolls Royce *Avon* turbines, each of which put out better than 7,000 pounds of static thrust. No doubt, more powerful turbines yet will be installed. Added indication of the massive production planned is the fact that Rolls Royce has to set up a new plant for additional production of the *Avons*.

Intended for high altitude operation, the *Canberra* now promises great things as a tactical machine. Speed and maneuverability will permit it to get to close quarters with ground armies. A three-man crew suffices. Armament details are lacking and gun emplacements are conspicuous by their absence. Span is 64′ length, slightly greater, or 65-1/2′. Height is 15′ 7″.

Norm Rosenstock launching an AA job, transmitter in hand. Portable unit eliminates desperate dash back to transmitter, permits moving after a plane.

# for the R. C. fan

## If flying fields are a major headache, small low-cost ships are lifesavers. Save money, too.

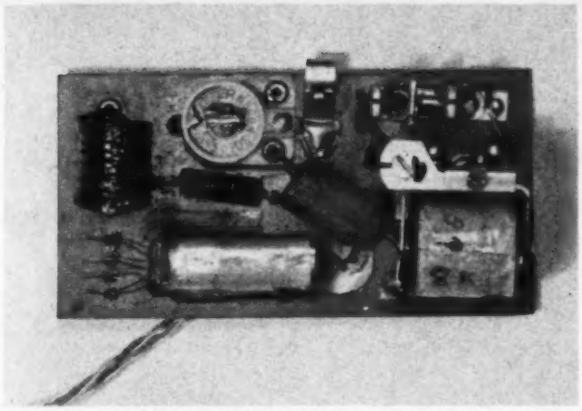
by NORMAN ROSENSTOCK

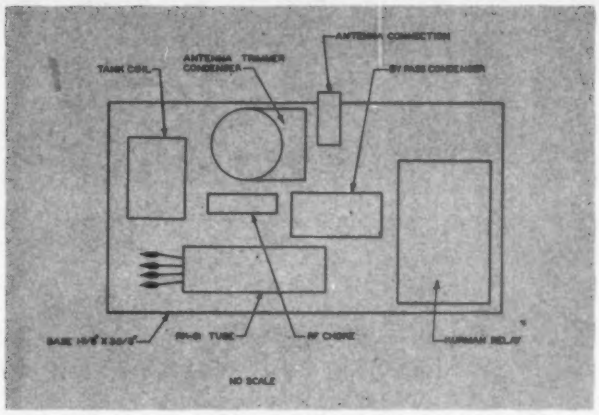
With the coming of the AA engine, whole concepts of model flying changed. AA models for their size and weight are stronger and more durable than other models. Also the cash layout for the engine and plane rarely runs more than six to eight dollars.

To a radio control builder this makes interesting figures when you consider that he has other expenses besides the model and engine. Too, it offers an interesting challenge to his modeling ability, being able to cram all the necessary radio gear in an AA job and still have a consistant flying r. c. model.

The idea for the AA radio job occurred to me one day when I found my flying space becoming smaller and smaller, and it was necessary to travel from 30 to 40 miles each Sunday to find a flying field. Up until then I had been flying 60-inch radio jobs which by the old standards were not large planes but according to today's standards not small ones either. It still required a field of considerable size. (At least 2 blocks square.) It was obvious that if I could build an AA radio control ship, I might be able to fly it in the local baseball diamond or athletic field since an AA model has a turning radius of only a fraction of a large plane. I took my 60-inch *Rocket*, (original design) which I was developing into a fair r. c. job, and scaled it down to the 40-inch *Rocket* or about 280 sq. in. of wing area. Due to scale effect, I knew I could not hope to fly this model with the same wing loading as the original, which may have varied from 18 to 22 ounces. I chose a 12-ounce wing loading as more suitable for this size plane, and that left me with a maximum gross weight of 1-1/2 pounds. Until this time the radio gear I had been using weighed as much as 20 ounces (receiver, batteries, and escapement), and now it is cut down to 7-1/2 ounces which leaves 16-1/2 ounces for the plane itself. With a complete radio installation of 7-1/2 ounces, the field is wide open for any size or weight plane the reader cares to build.

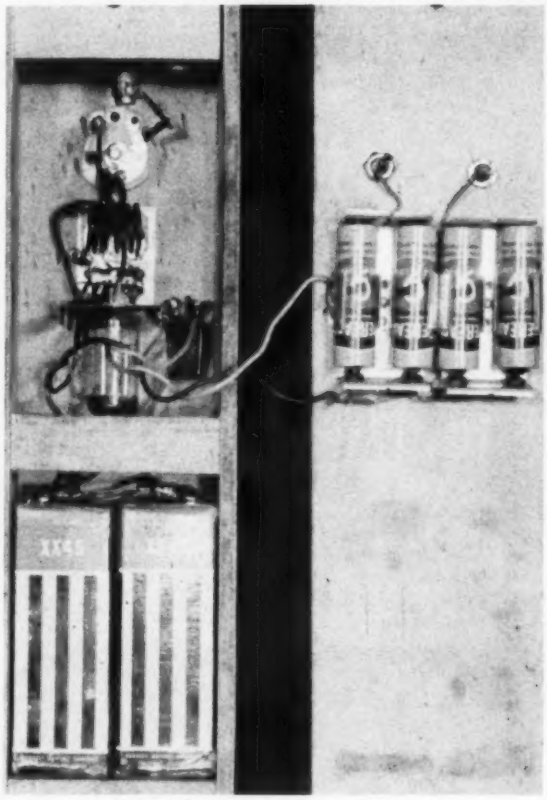
Here is a breakdown of the 7-1/2 ounce installation:



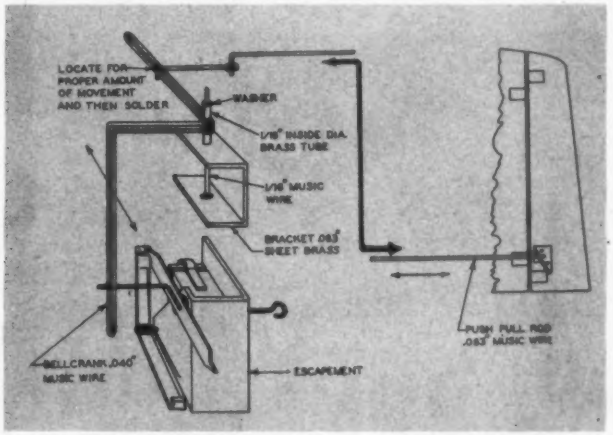



**In the receiver, left, above, the author has remounted all the parts on one side of the base to facilitate the sponge-rubber mounting described. Above, right—diagram identifies all parts in the picture. The tank coil is cement covered before tuning up so that receiver frequency remains stable.**

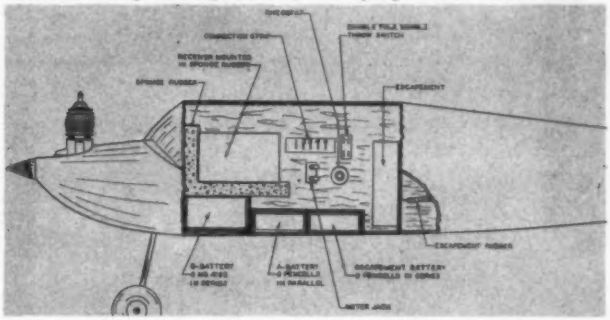
**Below—Hand-held whip-antenna transmitter enables launching of ship while holding transmitter. Despite experts, it works satisfactorily.**



**Through use of a pushrod connection to the rudder, small-ship builders are able to keep the escapement weight well forward; mounts near cabin.**


LOCATE FOR PROPER AMOUNT OF MOVEMENT AND THEN SOLDER
WASHER
1/16" INSIDE DIA. BRASS TUBE
1/16" MUSIC WIRE
BRACKET .083" SHEET BRASS
PUSH PULL ROD .083" MUSIC WIRE
BELLCRANK .040" MUSIC WIRE
ESCAPEMENT

**Below—In small ships all weight should be concentrated. Batteries here accessible through fuselage bottom; note sponge rubber receiver mount.**




| | |
|---|---|
| 2.25 oz. | 2 #412E *Ever-ready* batteries in series complete with balsa battery box. |
| 2.00 | 4 penlight batteries and 2 metal battery boxes. |
| 2.00 | *Aero-trol* receiver or any receiver utilizing an RK-61 tube and a Kurman relay. |
| .75 | Control Research escapement or any 1/2 oz. escapement plus plywood backing, bell-crank and push rod. |
| .25 | 1 double-pole, double-throw slide switch, 10,000 ohm button reostat ad light weight phono-jack. |
| .25 | Sponge pad about 2 x 6 x 1/2" and terminal strip. |
| 7.50 oz. | |

For purposes of stability in operation two pencells are necesary for the filament supply since it takes almost one hour for two fresh pencells to drop to 1.3 volts, while it takes one pencell less than 20 minutes to drop to the same voltage. A receiver will function properly in respect to sensitivity and range until it reaches 1.3 volts, when efficiency falls off rapidly and operation becomes unstable and undependable.

In a larger plane you would ordinarily use a five-prong plug and socket so as to easily remove the receiver from the airplane. In an AA model to save about one ounce, make a terminal strip out of 1/16" plywood and five soldering lugs which should be numbered or color-coated to correspond with the receiver wires. (See sketch.) The wiring in the plane should be hooked up to the terminal strip as you would to a five-prong socket. The receiver (with about an inch longer leads) should then be lightly soldered to the very tips of the soldering lugs. This way it is a semi-permanent arrangement making the receiver readily removable by the touch of a hot iron.

The value of the double-pole, (*Continued on page* 45)

# FOR MODELERS WHO WAT

*there's*

★ One-Coat Coverage ★ Smooth, High-Gloss Surface ★ 27 Colors . . . includ ial

# THE BEST...

## ...just one line to ask for!

...ual Army-Navy Aircraft Colors ★ Formulated Especially for Model Airplanes...

Right — Don Hodges, draftsman, holds while author packs in the turns. Favors unbraided rubber.

Below—Bob Dunham, *Pogo Stick*. Low-pitch prop, 60 second run.

# POGO STICK

***Refined over years of competition, variations of this stick job have placed well up at three nationals. One holds the D record for ROW.***

**by BOB DUNHAM**

The stick model presented here is the result of many modifications, and its original configuration dates back to 1947. The first *Pogo Stick* model of this series had approximately 200 square inches of wing area and was a smaller plane in every respect to the one presented herein. During the next three years, areas, moment arms, props, and motors were varied, and many fine flights were made.

At the 1948 and 1949 National Meets, modified versions placed in fourth and seventh positions. At meets throughout the Southwest the design always placed or won, with numerous planes being lost in the process.

In preparation for the 1950 contest season it was decided to build an enlarged 230 square inch job and the results were indeed promising. It is this plane whose plans are presented. At the 1950 Nationals the author was fortunate enough to place second in the Rubber Powered Stick Event by amassing a three flight total of 16:01.

After the Nationals, at a record trails meet in Tulsa, a 187 square inch *Pogo* was equipped with floats for an attempt on the class D stick rubber-powered R.O.W. category. The weather was excellent and on the last flight the plane was lost out of sight for a ten minute flight. With the help of two other fine flights a new national record of 14:31 was established.

The relatively long fuselage moment arm allows a long motor to be used without having an excessive amount of slack. The author has observed at recent past Nationals that the trend is more and more toward unbraided motors. They are troublesome to make, expensive, and heavy. Our opinion is that the good points for braiding do not outweigh the bad ones.

With the aid of the dimensions given on the plans, and since constant chord wing and elevator are utilized, enlarging to full size will not prove to be the task one might think.

*Fuselage*—In selecting the 1/8" sq. balsa for the fuselage, it is desirable to have the four main longerons cut from the same piece. This will assure even bending when drawing the front and rear together. Two of the sides are constructed, one on top of the other, to insure that they are identical. Allow to dry thoroughly and separate the two sides where they might have stuck together. Now cut several cross pieces to fit at the widest fuselage point, and join the sides together, checking to be sure that squareness is maintained. Pull the sides together at front and back and insert cross pieces measured from the plans. Next comes the 1/8" sheet fill-in at the front section and rear dowel anchor position. A sheet tin or fibre washer should be made to reinforce and maintain the rear dowel. A short length of 3/32" dowel for the dethermalizer rubber, and 1/16" sheet stablizer platform can now be glued in place. This completes the fuselage.

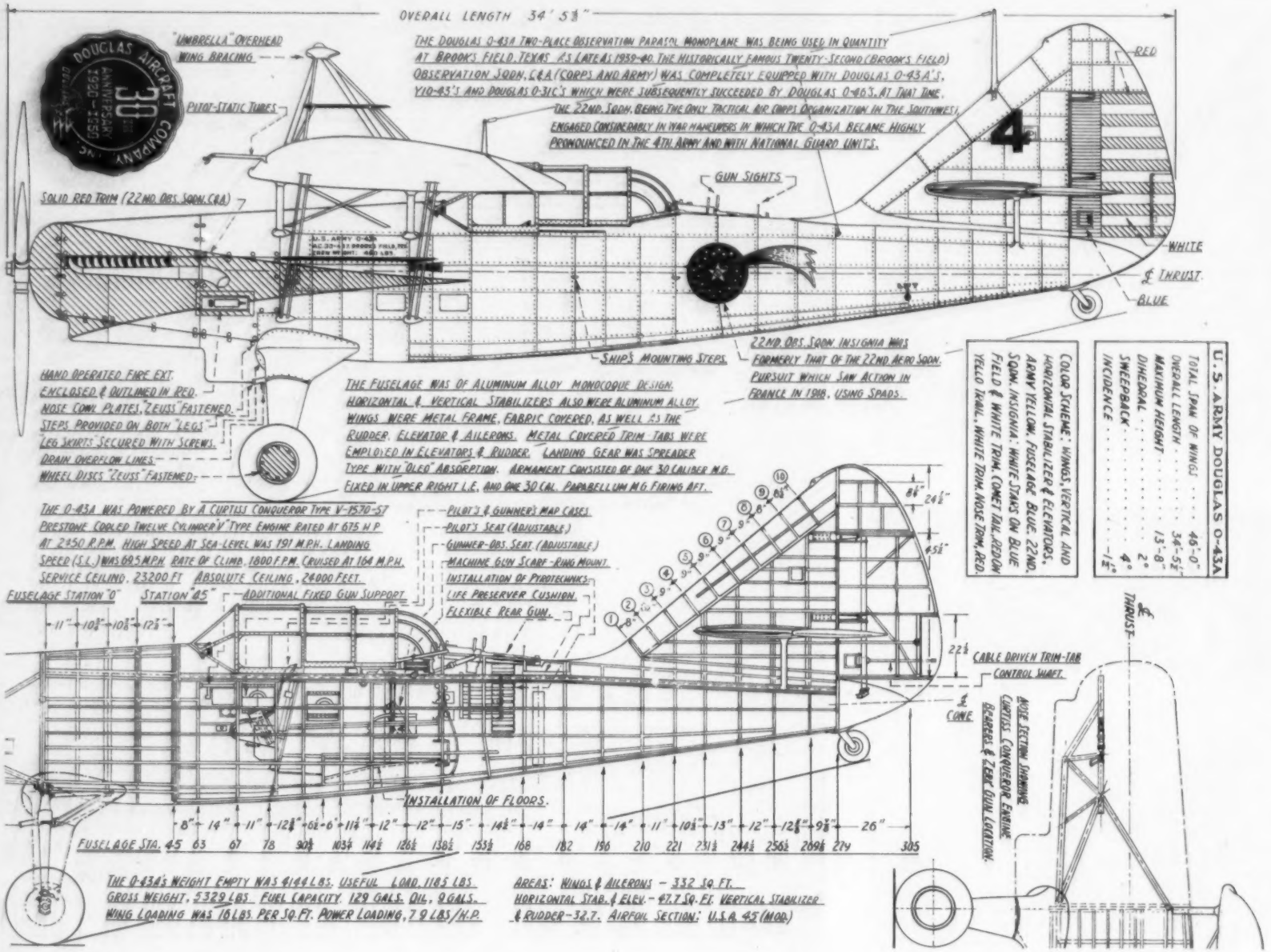
*Tail Surfaces*—An elevator rib template should be made from aluminum or thin plywood. From quarter-grained 1/16" sheet balsa slice 12 ribs, with one center rib from 1/8" sheet. Pin down the 1/8" x 1/4" main spar and 1/8" x 1/2" tapered trailing edge on the plan, cement in ribs and 1/16" square anti-warp braces, then add the 1/8" sq. leading edge. Tip plates are added after covering, but before water shrinking or doping. This prevents the tip ribs from allowing covering to sag or wrinkle.

The rudder is made of 1/8" medium hard sheet balsa, sanded to a symmetrical airfoil and given three coats of clear dope. Glue securely to the 1/8" center rib of the stabilizer, in a neutral position.

*Wing*—A wing rib template is fashioned from aluminum or thin plywood and 23 ribs are cut from 1/16" quarter-grained sheet balsa. Construction procedure is similar to that of the elevator. The trailing edge should be blocked up with 1/32" sheet scrap to insure a smooth contoured wing. The wing can be made in one piece and cut apart later or in three separate (*Continued on page* 44)

**Properly adjusted, *Pogo Stick*, has steep, fast, right corkscrew climb for 30 seconds, followed by a climbing cruise until the rubber tensioner engages.**

# douglas O-43A


OVERALL LENGTH 34' 5⅞"
"UMBRELLA" OVERHEAD WING BRACING
PITOT-STATIC TUBES
SOLID RED TRIM (22ND OBS. SQDN. C&A)
GUN SIGHTS
RED
WHITE
& THRUST
BLUE
SHIP'S MOUNTING STEPS
HAND OPERATED FIRE EXT.
ENCLOSED & OUTLINED IN RED.
NOSE COWL PLATES, "ZEUSS" FASTENED.
STEPS PROVIDED ON BOTH "LEGS"
LEG SKIRTS SECURED WITH SCREWS.
DRAIN OVERFLOW LINES.
WHEEL DISCS "ZEUSS" FASTENED.
PILOT'S & GUNNER'S MAP CASES
PILOT'S SEAT (ADJUSTABLE)
GUNNER-OBS. SEAT (ADJUSTABLE)
MACHINE GUN SCARF-RING MOUNT
INSTALLATION OF PYROTECHNICS
LIFE PRESERVER CUSHION
FLEXIBLE REAR GUN.
ADDITIONAL FIXED GUN SUPPORT
FUSELAGE STATION "0"
STATION "45"
INSTALLATION OF FLOORS.
FUSELAGE STA. 45 63 67 78 90⅞ 103⅞ 114½ 126½ 138½ 153½ 168 182 196 210 221 231½ 244½ 256½ 269⅝ 279 305
CABLE DRIVEN TRIM-TAB CONTROL SHAFT
& THRUST
& CONE
NOSE SECTION SHOWING CURTISS CONQUEROR ENGINE BEARERS & "ZERK" GUN LOCATION.

THE DOUGLAS O-43A TWO-PLACE OBSERVATION PARASOL MONOPLANE WAS BEING USED IN QUANTITY AT BROOK'S FIELD, TEXAS AS LATE AS 1939-40. THE HISTORICALLY FAMOUS TWENTY-SECOND (BROOK'S FIELD) OBSERVATION SQDN. C & A (CORPS AND ARMY) WAS COMPLETELY EQUIPPED WITH DOUGLAS O-43A'S, Y10-43'S AND DOUGLAS O-31C'S WHICH WERE SUBSEQUENTLY SUCCEEDED BY DOUGLAS O-46'S. AT THAT TIME, THE 22ND SQDN. BEING THE ONLY TACTICAL AIR CORPS ORGANIZATION IN THE SOUTHWEST, ENGAGED CONSIDERABLY IN WAR MANEUVERS IN WHICH THE O-43A BECAME HIGHLY PRONOUNCED IN THE 4TH ARMY AND WITH NATIONAL GUARD UNITS.

22ND OBS SQDN INSIGNIA WAS FORMERLY THAT OF THE 22ND AERO SQDN. PURSUIT WHICH SAW ACTION IN FRANCE IN 1918, USING SPADS.

THE FUSELAGE WAS OF ALUMINUM ALLOY MONOCOQUE DESIGN. HORIZONTAL & VERTICAL STABILIZERS ALSO WERE ALUMINUM ALLOY. WINGS WERE METAL FRAME, FABRIC COVERED, AS WELL AS THE RUDDER, ELEVATOR & AILERONS. METAL COVERED TRIM TABS WERE EMPLOYED IN ELEVATORS & RUDDER. LANDING GEAR WAS SPREADER TYPE WITH "OLEO" ABSORPTION. ARMAMENT CONSISTED OF ONE 30 CALIBER M.G. FIXED IN UPPER RIGHT L.E. AND ONE 30 CAL. PARABELLUM M.G. FIRING AFT.

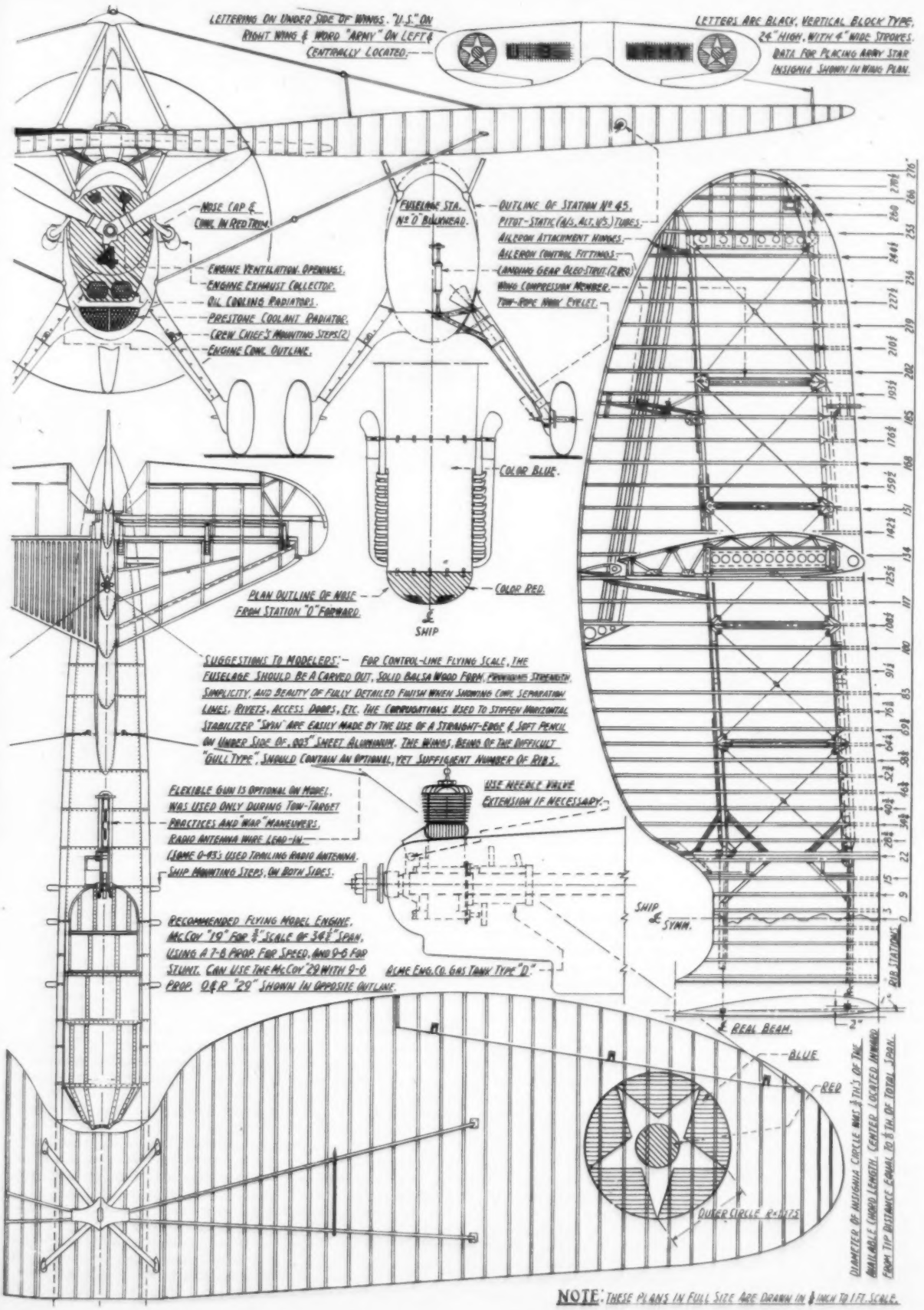
THE O-43A WAS POWERED BY A CURTISS CONQUEROR TYPE V-1570-57 PRESTONE COOLED TWELVE CYLINDER "V" TYPE ENGINE RATED AT 675 H.P. AT 2450 R.P.M. HIGH SPEED AT SEA-LEVEL WAS 191 M.P.H. LANDING SPEED (S.L.) WAS 69.5 M.P.H. RATE OF CLIMB, 1800 F.P.M. CRUISED AT 164 M.P.H. SERVICE CEILING, 23200 FT. ABSOLUTE CEILING, 24000 FEET.

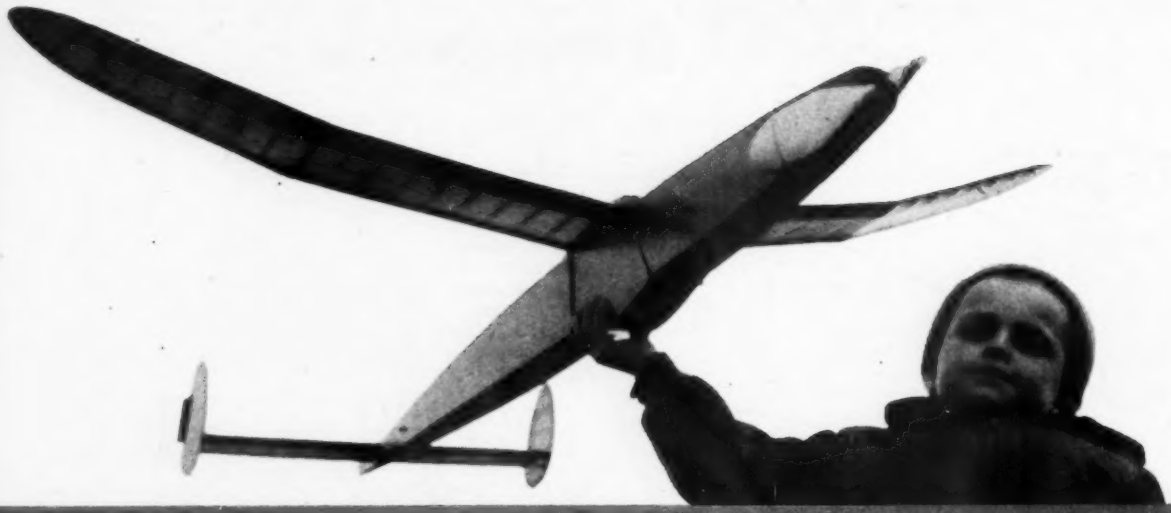
| U.S. ARMY DOUGLAS O-43A | |
|---|---|
| TOTAL SPAN OF WINGS | 46'-0" |
| OVERALL LENGTH | 34'-5⅞" |
| MAXIMUM HEIGHT | 13'-8" |
| DIHEDRAL | 2° |
| SWEEPBACK | 4° |
| INCIDENCE | 1½° |

COLOR SCHEME: WINGS, VERTICAL AND HORIZONTAL STABILIZER & ELEVATORS, ARMY YELLOW. FUSELAGE BLUE. 22ND. SQDN. INSIGNIA: WHITE STARS ON BLUE FIELD & WHITE TRIM. COMET TAIL ARROW YELLOW (RAIL, WHITE TRIM. NOSE TRIM, RED.

THE O-43A'S WEIGHT EMPTY WAS 4144 LBS. USEFUL LOAD, 1185 LBS. GROSS WEIGHT, 5329 LBS. FUEL CAPACITY, 129 GALS. OIL, 9 GALS. WING LOADING WAS 16 LBS. PER SQ. FT. POWER LOADING, 7.9 LBS/H.P.

AREAS: WINGS & AILERONS - 332 SQ. FT. HORIZONTAL STAB. & ELEV. - 47.7 SQ. FT. VERTICAL STABILIZER & RUDDER - 32.7. AIRFOIL SECTION: U.S.A. 45 (MOD.)


LETTERING ON UNDER SIDE OF WINGS. "U.S." ON RIGHT WING & WORD "ARMY" ON LEFT & CENTRALLY LOCATED.
LETTERS ARE BLACK, VERTICAL BLOCK TYPE, 24" HIGH, WITH 4" WIDE STROKES. DATA FOR PLACING ARMY STAR INSIGNIA SHOWN IN WING PLAN.
NOSE CAP & CONE IN RED TRIM
ENGINE VENTILATION OPENINGS.
ENGINE EXHAUST COLLECTOR.
OIL COOLING RADIATOR.
PRESTONE COOLANT RADIATOR.
CREW CHIEF'S MOUNTING STEPS (2)
ENGINE CONE OUTLINE.
FUSELAGE STA. No "0" BULKHEAD.
OUTLINE OF STATION No 45.
PITOT-STATIC (A/S, ALT, V/S) TUBES.
AILERON ATTACHMENT HINGES.
AILERON CONTROL FITTINGS.
LANDING GEAR OLEO STRUT (2 REQ.)
WING COMPRESSION MEMBER.
TOW-ROPE ARMY EYELET.
COLOR BLUE.
COLOR RED.
PLAN OUTLINE OF NOSE FROM STATION "0" FORWARD.
SHIP
"SUGGESTIONS TO MODELERS" — FOR CONTROL-LINE FLYING SCALE, THE FUSELAGE SHOULD BE A CARVED OUT, SOLID BALSA WOOD FORM, PROVIDING STRENGTH, SIMPLICITY, AND BEAUTY OF FULLY DETAILED FINISH WHEN SHOWING COMP. SEPARATION LINES, RIVETS, ACCESS DOORS, ETC. THE CORRUGATIONS USED TO STIFFEN HORIZONTAL STABILIZER "SPAN" ARE EASILY MADE BY THE USE OF A STRAIGHT-EDGE & SOFT PENCIL ON UNDER SIDE OF .005" SHEET ALUMINUM. THE WINGS, BEING OF THE DIFFICULT "GULL TYPE", SHOULD CONTAIN AN OPTIONAL, YET SUFFICIENT NUMBER OF RIBS.
FLEXIBLE GUN IS OPTIONAL ON MODEL, WAS USED ONLY DURING TOW-TARGET PRACTICES AND "WAR" MANEUVERS.
RADIO ANTENNA WIRE LEAD-IN — (SOME O-49's USED TRAILING RADIO ANTENNA.
SHIP MOUNTING STEPS, ON BOTH SIDES.
USE NEEDLE VALVE EXTENSION IF NECESSARY.
RECOMMENDED FLYING MODEL ENGINE, McCOY "19" FOR 3/4" SCALE OF 36 1/2" SPAN, USING A 7-8 PROP FOR SPEED, AND 9-6 FOR STUNT. CAN USE THE McCOY "29" WITH 9-0 PROP. O&R "29" SHOWN IN OPPOSITE OUTLINE.
SOME ENG. CO. GAS TANK TYPE "D".
SHIP ℄ SYMM.
℄ REAL BEAM.
2"
RIB STATIONS
BLUE
RED
DIAMETER OF INSIGNIA CIRCLE WHICH IS 1/5 OF THE AVAILABLE CHORD LENGTH, CENTER LOCATED INBOARD FROM TIP DISTANCE EQUAL TO 1/8 OF TOTAL SPAN.
OUTER CIRCLE R=11.75
NOTE: THESE PLANS IN FULL SIZE ARE DRAWN IN 1/4 INCH TO 1 FT. SCALE.



NO MATTER HOW YOU LOOK AT IT THERE IS ALWAYS A BETTER WAY OF DO

# rubber roundup

## PART TWO

by CHARLES WOOD

Variation of variation on a theme, Wakefield, Frank Evans, the Prop Spin

When actually laying out the fuselage outlines, space off the moment arms first, draw in the wing and stabilizer positions and then sketch in the outside outlines of the fuselage. It will be easy to determine the position of the wing and tail because you know the moment arms. If possible, leave a flat spot on the top of the fuselage about an inch or so before and behind the wing so you can shift the wing to determine its best position.

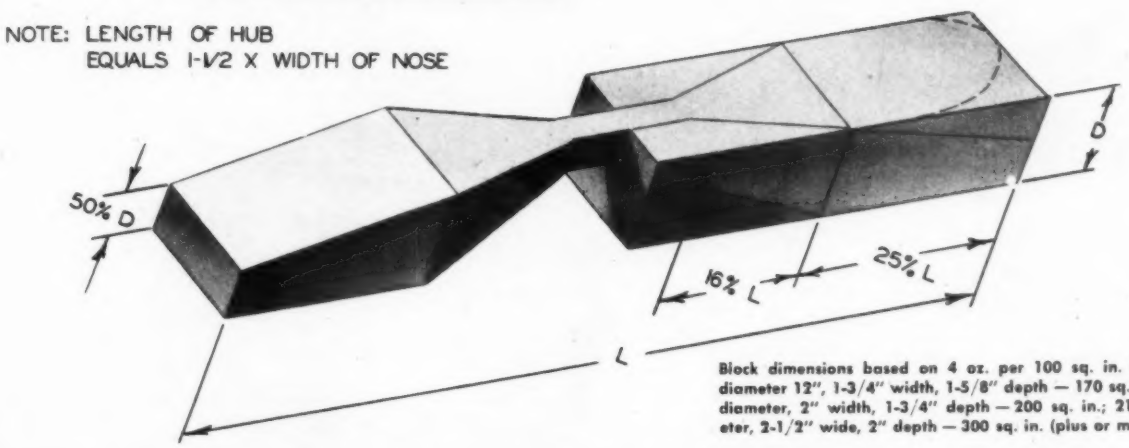
The thrust line is best located in about the middle of the fuselage; a low thrust line tends to produce a severe nosing up couple that is hard to correct with downthrust. A high thrust line on the other hand tends to produce a racing when the power is nearly exhausted. Of course the wing position has a great deal to do with the flying characteristics of the model too. Either a high wing or a shoulder wing position is good, and a little experimenting will show which position is best. The author prefers a wing that rests flat on top of the fuselage, which is actually a high shoulder wing because of the fairing over the wing.

The stabilizer is best located on top of the fuselage because of the dethermalizer attachment, and it is easier to mount so that it will slide off in a crash. Mount the stabilizer on or slightly above the thrust line for best results.

A. M. A. rules and Wakefield rules specifically state that a cabin model type will take off unassisted. In order to fulfill this requirement, we have to have a landing gear. There are several types to choose from: retracting, single wheel non-retracting (peg-leg), and conventional double wheel gear. Which type to use is largely up to the tastes of the designer. However, each type has its advantages. The two-wheel fixed gear is simplest to use for take-off and is the most reliable in operation. However, it is heavier than a retracting gear, requires more fuselage structure and is a source of much drag. The peg-leg gear is not widely used because it requires twin rudders or skids for three-point take-off and does not offer the reduction in drag by retracting.

The retracting single wheel gear is coming into wider use because it is lighter than either the two-wheel or peg-leg gear and because it eliminates nearly all the landing gear drag. The main reason retracting gears have not been widely used has been that they have been unreliable—either retracting too quickly or not retracting fully. However, by using a rubber band on the outside of the landing gear to lock it down and then releasing it with a short fuse, this type of gear becomes just as reliable as conventional two-wheeled gear. Not only this, but a model with

## PROP BLOCK BLANK




Block dimensions based on 4 oz. per 100 sq. in. loading: diameter 12", 1-3/4" width, 1-5/8" depth — 170 sq. in.; 17" diameter, 2" width, 1-3/4" depth — 200 sq. in.; 21" diameter, 2-1/2" wide, 2" depth — 300 sq. in. (plus or minus 10).

## OF DOING ANYTHING. THIS MONTH'S DISCUSSION REVEALS SOME PRICELESS TIPS.

Chuck Wood with 1950 job, a D version of which holds the record.

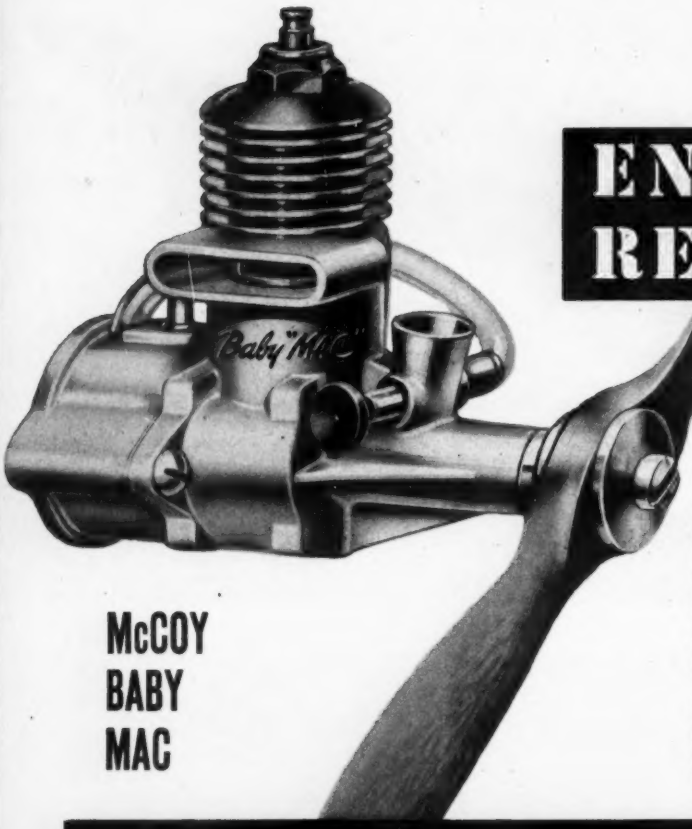
Interesting comparison of old and new shows in '51 version.

a retracting gear will never be spilled over on its back when landing as the model will slide in without damage. For a specific installation of this type of gear see the author's article on Yankee IV, Jan. 1951 M. A. N. Whatever type of gear is used, be sure that there is sufficient ground clearance for the prop. Some designers mistakenly figure prop clearance when the model is resting in a three-point position, in the belief that the model gets off the ground so fast the tail doesn't come up. Actually, any rubber model, no matter how high powered, rolls for two or three feet with the tail up before it leaves the ground. So measure your clearance with the model in a level attitude. Leave about 3/4" for strut flexing and you will never ruin a prop by having it clip the ground on take-off.

The stabilizer is probably the least complicated of all flying surfaces, but it is one of the most important. The stabilizer generally has a lower aspect ratio than the wing because it has a smaller span, and yet the chord is nearly the same as the chord of the wing. Remember that an airfoil 3" or less loses its characteristics and becomes more like a flat plate. Therefore when the stabilizer area is limited we want to get the most lift possible from a small surface and we do this by using aspect ratios from 4.5 to 1 and up. We could use a high aspect/ratio stabilizer if the chord could be reduced to say 2" and still preserve the airfoil, but since we can't, the lower ratios seem to be the answer. Also a lower a/r stabilizer is stronger for its size than one with a high a/r.

More important than the a/r is the relation of the area of the stabilizer to the area of the wing and also its effect as related to the tail moment arm. A stabilizer need be no larger than 33 per cent of the wing area if the tail moment arm is proportioned correctly as explained previously. If on the other hand, the tail moment arm is very short, increasing the area of the stabilizer will still result in a stable model. A. M. A. rules limit stabilizer area to 50 per cent of the wing area, but it is rarely necessary to use this much. Remember that the larger the stabilizer, the more the drag increases, and we are trying to eliminate as much drag as possible. There is also the tendency of large stabilizers to over-ride the wing, particularly during the climb, and this results in a flat climb rather than a smooth pattern.

Since a stabilizer has a relatively large chord and a small span, there is considerable tip loss, but this can be greatly reduced by using twin rudders or small end plates when using a single rudder. Rounding the tips also helps, but is not as effective as with (*Continued on page* 48)




# ENGINE REVIEW

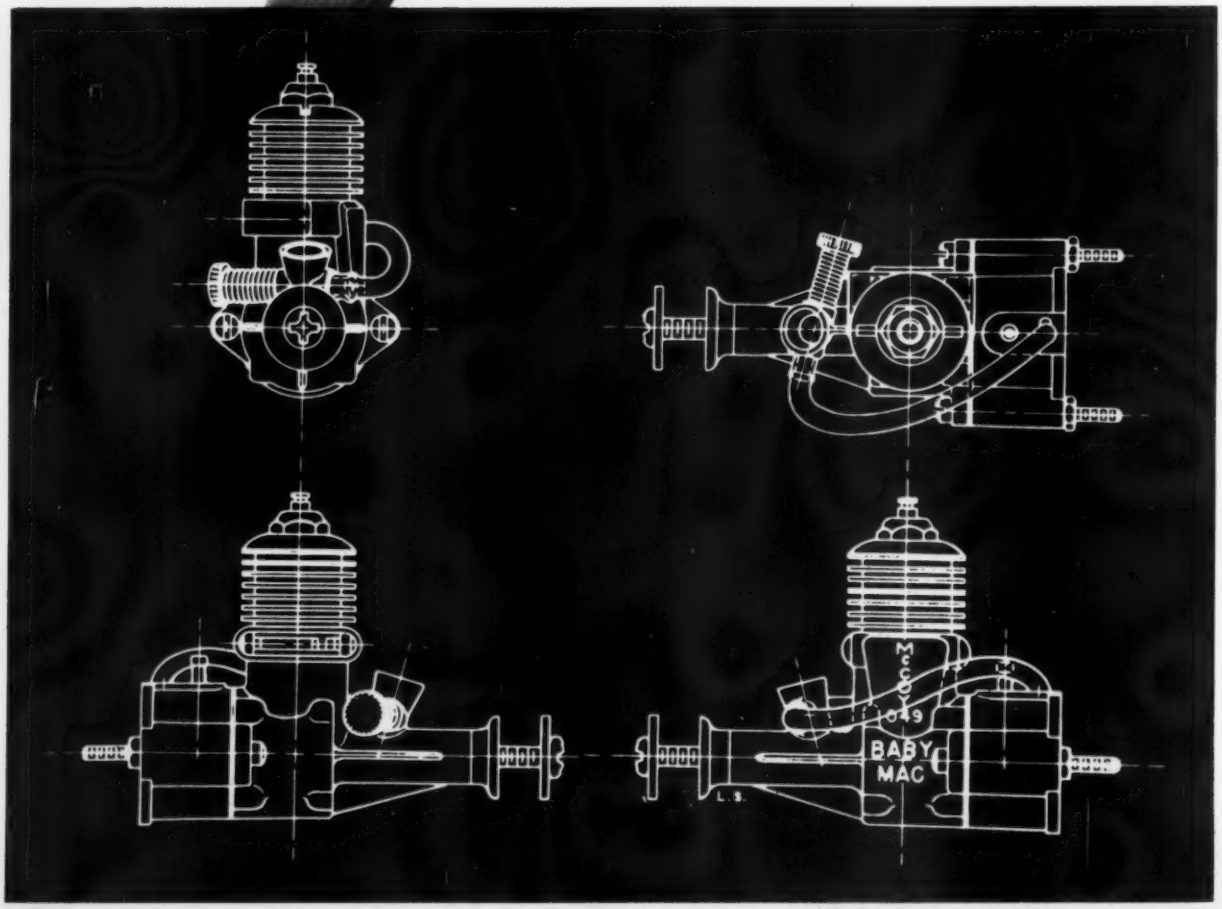
## McCOY BABY MAC

***Duro-Matic's .049 was designed by Dick McCoy for free flight. Control line companion engine in the cards.***

Designed by Dick McCoy for AA Free Flight, the new glo-plug .049 *Baby Mac* has all of the qualities that made the larger McCoy's consistent contest winners. Its light weight of 1.25 ounces and over-all height of less than 2", make it a most compact model airplane engine.

With integral gas tank the over-all length is 2-1/4". The long crankshaft permits a greater streamlined cowling and easier choking.

Features include a specially designed ball seat connecting rod retainer that has eliminated the conventional wrist pin. As a result, there is no wrist pin hole in the side wall of the piston to collect dirt and cause uneven cylinder wall wear and likewise prevent (*Continued on page* 40)



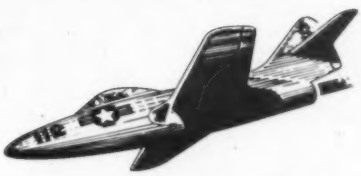
# Boys! IT'S EASY TO BUILD SCALE MODELS WITH GUILLOW'S *Sensational* DIE-CUT BALSA SHELF MODEL AIRPLANE KITS

VOUGHT CUTLASS F7U

The Navy's first sweptback wing airplane. A transonic fighter designed to operate from a carrier.

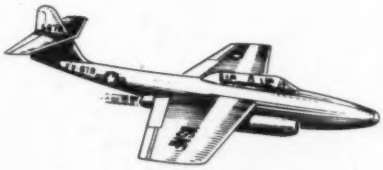
RUSSIAN FIGHTER MIG-15

The plane our F-86 Sabre faces in the Korean War. Speed reported to be as high as 680 mph.



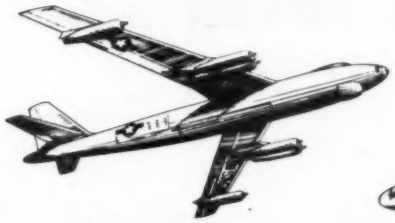
GRUMMAN PANTHER F9F

Navy jet carrier fighter seeing service in Korea. Speed in the neighborhood of 600 mph.



NORTHROP SCORPION F-89

A twin jet night fighter in the 600 mph class. Successor to the famed World War II Black Widow.



BOEING STRATOJET B-47

The most modern Air Force heavy bomber – powered by six turbojet engines – fleet as a jet fighter.

NORTH AMERICAN TORNADO B-45

A new light bomber with twin jet engines – boasts a speed of well over 600 mph.

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## EASY ASSEMBLY - NO DIFFICULT CARVING

EACH KIT CONTAINS A PLASTIC CANOPY – ALSO INSIGNIA FOR WING AND FUSELAGE

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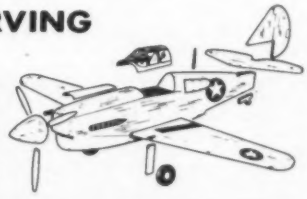

## STILL GOING STRONG!

Lou Andrews TRIXTER CONTROL LINE STUNT MODELS

1950 NATIONAL OPEN STUNT CHAMPION

**Trixter BARNSTORMER**

1ST IN SENIOR STUNT EVENT - 1ST IN OPEN STUNT EVENT - 47" WING SPAN - 470 SQ. IN. WING AREA - .23 TO .35 CU. IN. DISP. KIT CONTAINS FULL SIZE PLANS, ILLUSTRATED STEP-BY-STEP INSTRUCTIONS AND PRE-FAB PARTS.

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OTHER GUILLOW ITEMS AVAILABLE.

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ADD 15¢ MAILING CHARGE TO ALL ORDERS.

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THE FORMERS, RIBS AND TIP OUTLINES ARE DIE-CUT FOR EASY CONSTRUCTION. THE POLYMER BALSA DIE-CUT PARTS ARE EASY TO IDENTIFY. 50¢ — $1.00 ea.

## PAUL K. GUILLOW, WAKEFIELD, MASS.

# over the counter

A monthly review of hobby developments, new items

## by THE TRADE OBSERVER

One of the hits of the Model Industry Trade Show in Chicago last winter was Testor's (Testor Chemical Co., Rockford, Ill.) scale model *Spitfire MK-19*. Possibly the most famous fighter plane of all time, the *Spit* has been fittingly reproduced by Testor's Key-Lock assembly and molded-to-shape balsa parts. A radical innovation of the shelf type of model, Testor's easily assembled kit represents a big step forward in the industry's thinking. Molded parts include the two fuselage shells or half sections and the two wing half sections. All parts are shaped and ready for assembly. Span is 17-1/2", length 16" Illustrated step-by-step instructions include "to scale" drawings of three views of the plane, with authentic RAF decals, plastic canopy, and five-bladed prop. Price is $1.50. The *Spitfire* is the first of a new series.

From Duro-Matic (Duro-Matic Products Co., 1039 N. La Brea Ave., Hollywood 38, Calif.) comes news that the new *Baby Mac* .049, especially designed by Dick McCoy for free flight, is to have a companion engine for controline use. The free flight *Baby Mac* has an integral fuel tank and engine mount. The U-control *Baby Mac* will have a back plate to increase base compression for stunting. It will not have the integral fuel tank. Production of the U-control *Baby Mac* will begin as soon as the current material situation is clarified.

Jim Walker (A-J Aircraft Co., 1166 N. E. 31st Ave., Portland, Ore.) told your reporter of plans to introduce a glider of about 20" span this Fall. According to Walker, A-J really got its start with an A-J stunt glider of about this size, which few present-day modelers remember. Flown on long lengths of #60 thread for towline, it can be put up to tremendous heights. Cure for spiral dives on tow, with their attendant design difficulties, says Jim, is a simple kit tail of cloth strips, anywhere from six to 15 feet in length. Two tandem hooks are involved, one near the tail. Cloth streamer attaches to rear hook and to line, comes off at same time.

Hoping to introduce an AA model carrier event, Consolidated Model Engineering Co. (3087 Third Ave., Bronx 56, N. Y.), has a new line of super scale flying models to sell at $2.95 each. Approximately half-inch scale, these kits include redi-carved and hollowed out fuselage; cut-to-shape wings, stabs and rudders; hardward and detailed plans. There will be ten models in all, states Artie Hasselbach.

J. R. Forster (Forster Brothers, Lanark, Ill.) advised Over the Counter of developments on a new front rotary engine, but due to war work which now takes up 90 per cent of Forster's time, it is impossible to set a delivery date. Details will be published in Over the Counter in a later issue.

Latest "dope" from the dope world, is a four-page booklet "How to do a Professional Job of Model Airplane Finishing," prepared by Pactra Chemical Co. (1213 N. Highland Ave., Los Angeles 39, Calif.), in collaboration with Henry Engineering (111 N. Niagara St., Burbank, Calif.). Bob Palmer, Joe Wagner, and Gil Henry of the latter firm (Veco) had a hand in the booklet which is being included in all *Veco* kits. Pactra's Al Davenport states that the firm also has come out with a one-ounce bottle of *Aero Gloss*, retailing at 20¢. The booklet may be obtained from dealers.

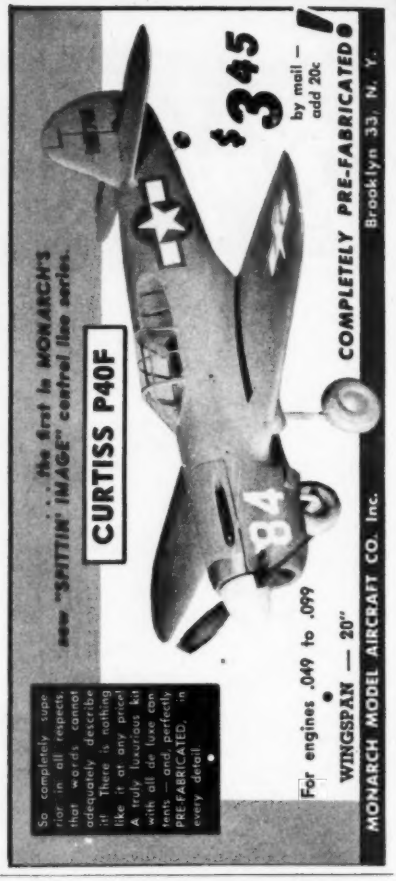
Canadian builders will be intersted in a new giant catalog put out by Model Craft Hobbies, Ltd. (66 Wellington St., West, Toronto 1, Canada), which virtually covers all makes of trains, planes, boats, cars, engines, and accessories. There are 34 pages of illustrated items with covers in color.

Major news in the radio control field is a statement by Control Research Model Division (P. O. Box 9, Hampton, Va.) that RK-61 tubes were to be available at the time Over the Counter went to press. Demand for these tubes is great because the receivers involved are small, light, and low cost. It is the RK-61 that permitted the development of miniature rc models. Control Research's new conversion kit, states John Worth, will eliminate practically all of the objections to RK-61 or XFG-1 receivers. Either tube can be used, plus another tube, in almost any combination. Tube life is no longer critical, battery drain lowered, relay operation and adjustment simplified. Range is better. Conversion of existing receivers is simple.

Control Research will introduce shortly a new model receiver requiring no shock mounting. It will be completely insensitive to body capacity. Available in 52 mc at first, with easy switch to 27 mc, these will have half the drain of present RK-61 receivers.

*Flying Silversaucers* (Atomcraft Products Co., 411 Broadway, St. Paul, Minn.), a four-foot plus true saucer, built up from reed, balsa strips and covered with aluminum paper, have had people seeing saucers from coast to coast. Flown on a sturdy string, the *Silversaucers* can be flown up to 1500 feet altitudes. Price has been reduced from $4.65 to $2.95.

With his *All American* stunt model, Harold deBolt (deBolt Engineering Co., Williamsville, N. Y.) has added a new gimmick described as asymmetrical stability. The fuselage is located outboard on the wing from the control pivot. While appearance suggests the familiar off-center wing, giving more lift on the inboard panel, the result of the deBolt arrangement is to duplicate the effects of wing-tip weight without having that weight. Thus, a lighter model is possible, important in stunting. In fact, the effect is so magnified that no offsets of any kind are needed.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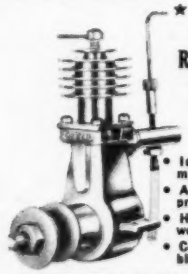

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- Height a full 3½ inches; weight 5 ounces
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CARTER CRAFT MODELS

In an exclusive release to MAN, K & B (K & B Mfg. Co., 224 E. Palmer St., Compton, Calif.) announced a new .29 and .32, actually redesigned engines based on the *Torpedo* .29 and .32. Last November, K & B had notified the trade that, due to material shortages, production of .29's and .32's was being curtailed. But five months later, the Compton firm was able to set up production again, meanwhile redesigning the die. According to Johnny Brodbeck, performance is up 20 per cent. The new engines will be packaged with a prop. The old .29 and .32 have not been obsoleted, as all new parts are interchangeable with the old engines. Priced at $14.95, the new engines are similar in appearance to the K & B .19. An ignition .29, less coil and condenser, will sell for $18.50; a .24 ignition, also less coil and condenser, for $16.50.

Atwood's (Atwood Manufacturing Co., 4738 S. Durfee Rd., Pico, Calif.) timer tank, already manufactured for use with the K & B and O & R .29's, the *Triumph* .49 and .51 is now available in AA. The principle of the *Micro Wasp* tank is simple. A baffle in the tank, with a spring actuated shut-off valve for the lower compartment meters the fuel that is left available after the timer is tripped. The metering compartment allows about 30 seconds running. Adjustment is done by loading this compartment with shot, hard wood blocks or similar material. About 5/8" of 3/16" dowel gives about 18 seconds run. It is a motor mount as well as a tank and requires no special installation. Price: $1.50.

F-B Model Aircraft (3240 Larimer St., Denver, Col.) recently added to the rapidly growing F-B family a Class B-C stunt ship called the *Vampire*. According to President Richard Newman, short building time and ease of assembly are its main features. Span is 40", 9" chord, and a wing span of 360 sq. in. Fuselage is prefabricated. Ribs are die-cut; parts are shaped and formed. Other F-B items include the *Baby Sky Boy* stunt trainer, Class A-B; Piper *Vagabond* scale stunt, Class A-B; the *Sharpy*, stunt plane for Class C-D engines; and the *P-T Trainer* with prefabricated profile, 155 sq. in. wing, with a 26" span for Class A-B engines.

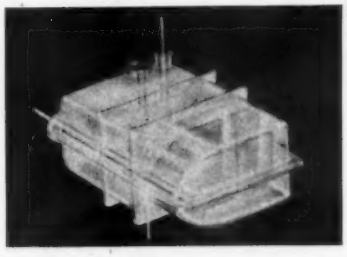
By special arrangement, Berkeley (Berkeley Models Inc., 25 Harborough Rd., West Hempstead, N. Y.) will manufacture Keith Storey's *Quest*, plans of which appear elsewhere in this issue. Tentative price is $4.95. The *Quest* kit includes all-metal cowl, bubble canopy, metal landing gear, and prefabricated balsa construction.

Of interest to electronic enthusiasts is a new 54-page illustrated booklet by Sylvania Electric Products Co., which described 24 arrangements of germanium diodes. Applications to radio control of model railroads, pocket type stroboscope, light-duty electroplaters, etc., are explained. Booklet may be obtained for 25c from Advertising Department, Sylvania Electric Products Inc., Emporium, Pa.

Any modeler who does a serious amount of building will be interested in a new $5 X-Acto (X-Acto Products Co., 440 4th Ave., New York 16, N. Y.) whittling and carving chest which contains 17 precision-sharp steel knife blades, gouges, routers, whittler and saw blades, with a knife handle for instant blade changing. May be obtained from hobby shops, hardware stores, or direct from the manufacturer. For $1, X-Acto also has the familiar detachable blade knife in a fountain pen case, with reserve blade in handle reservoir.

Hot fuel proofer in a 10¢ size for AA models, is now being marketed by Comet Model Hobbycraft, Inc. (129 W. 29th St., Chicago 16, Ill.). This item is in addition to the standard 25c size fuel proofer. Comet also has their new "K" series of models ready: Aeronca, Piper *Cub*, Taylorcraft. At 50¢ each, these kits are prefabbed, including plastic cowl, and prop, decal, plan, all-balsa hollow-wing. No tissue covering required. Three new "M" series items now on sale are Beech *Bonanza*, Bellanca *Cruisair*, *Ercoupe*. Similar to "K" series but larger.


PYLON BRAND PLASTIC FUEL TANK



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75¢ small  95¢ medium  $1.25 large

Factory guaranteed against leakage and breakage. Visible fuel supply. Adjustable fuel level. Built-in pumping action. Resists effects of all standard fuels. Designed for easy mounting, the exclusive "SKWEDGE" shape and design elements give best fuel feed system in model airplanes to-day.

FLY SAFELY . . . USE PYLON BRAND CLIPS AND SWIVELS!

PYLON BRAND CLIPS
Smaller, lighter and stronger than old-fashioned connectors, they are easier to operate. Self-locking feature assures safe, positive connection ..... 75c per dozen

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Made of finest Swedish steel drawn to controline specifications . . . the safest wire ever made!

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4¼ lb. Thrust
16 oz. Weight
21 in. Long
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● NO SPECIAL FUELS REQUIRED! Runs best on plain gasoline. Does not use war scarce nitro chemicals or methanol.

● NO PROPELLERS TO REPLACE!

JET PROPULSION! The greatest development in the field of aviation. Be modern, gain enjoyment plus knowledge with the world's finest miniature engine!

SUPER POWERED! More than 4¼ lbs. guaranteed thrust . . . the equivalent of 3 HP at 190 mph with 70% propeller efficiency . . . 1948 AMA speed record of 179.03 mph.

EASIEST STARTING! Most practical and reliable engine ever built. No propellers to break. No ignition system to burden your model. No bearings to wear out. No expensive, special fuels to buy or mix.

MOST ECONOMICAL! Will not wear out. Constant high resale value. Savings on propellers and fuel alone pay the difference in cost between Dyna-Jet and cheaper engines.

OFFICIALLY ACCEPTED! Accepted for contests by AMA, and by modelers the world over.

HOLDS ALL WORLD RECORDS for Jet models.
GUARANTEED! 1. To start easily with hand tire pump. 2. To equal or exceed the advertised thrust. 3. Against defective materials or workmanship.

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It's quite a feat to win the Senior Flying Scale event at both the 1949 and 1950 Nationals . . . and any model builder who can do it must be a judge of the best finish . . . and that means

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## Engine Review

(*Continued from page* 36)

scoring. Piston is special alloy steel, hardened and ground, with a domed head for maximum power explosion of the fuel. Exhaust is conventional circumferential.

The cylinder barrel of cold rolled steel has six extra deep fins that extend down the entire exposed portion of the barrel permitting maximum cooling of the cylinder walls under all flying conditions. Dural steel red head cylinder head, cylinder barrel and aluminum connecting rod, retainer and piston form a complete unit. The lower portion of the cylinder barrel is precision-threaded and this complete unit screws into the die-cast special alloy crankcase.

Crankshaft is of stress proof steel. Cylinder bore is .405 with stroke of .386. This extreme bore-to-stroke ratio is particularly advantageous at high rpm's to develop maximum power, states the manufacturer.

The hp rating is 2 hp per pound of weight; over-all weight is 1.25 ounces. The crankcase intake valve is tapered to give good venturi action, fitted with needle valve and spring for easy and permanent fuel adjustment.

Die-cast aluminum fuel tank, complete with filler pipe is fastened to the rear of the engine with two screws that act as mounting bolts in attaching the engine to the plane's firewall. Back plate gasket insures a leak-proof fit between fuel tank and crankcase, and fuel tank cover fits over fuel tank gasket to form a leak-proof seal against the firewall.

A plastic fuel line insures visible view of fuel delivery. The contour of the fuel tank is streamlined into the over-all engine design. McCoy Hot-Point Glo-plug assures uniform burning of fuel for maximum power under every flying condition.

The *Baby Mac* comes semi-assembled, and a very clear exploded view photograph on the bottom of the box, illustrates each individual part, with its corect name, part number and placement in the engine, so that a new owner who might be entirely unfamiliar with model combustion engines will have no difficulty.

Completing the step by step assembly instructions, starting and operating instructions cover all phases necessary to secure most satisfactory performance by guiding the owner along each step of the way: Needle valve adjustments are explained; the best type of fuel is recommended; starting procedure is outlined; causes for engine failure to start, and indications of too lean or too rich mixtures and engine flooding is completely explained.

The *Baby Mac* sells for $5.95 complete with propeller, head wrench and Hot-Point Glo-plug.

## Tried $H_2O$?

(*Continued from Page* 11)

types being very realistic in appearance and performance. All-balsa floats with a V-bottom are used as shown on Chuck's swell Cub. A three-quarters of an inch thick plywood block with a series of holes are the mounting blocks and provide any adjustment needed. Dowels are used for spreader bars one-half inch in diameter. These are held in place by means of wire hooks and rubber bands. The front gear is placed in correct position to c.g. The pontoon step should be about one-half inch ahead of the c.g. The rear gear is attached by means of extra strut which enters fuselage through a dowel placed in line with main front land gear. Each end of this dowel (one-half inch in diameter) is drilled into 1-1/2" deep on each end. Rubber stretched between two rear struts holds them in dowel socket. Water rudders are a must in taking off. This rear fixture and waterproofing are the only changes needed to convert a land plane to seaplane. Balance is changed for slight nose heaviness or 40 to 45 per cent of the chord from leading edge. This is necessary as water spray from take-offs makes the empennage tail heavy. Take-offs vary with condition of water surface. On a glass smooth surface 150- to 200-foot run may be required; thus motor runs are never less than 45 seconds. This *Cub* has a flat glide and upon landing, the rear of pontoon contacts water first due to the five degree angle. Tests indicate this angle of five to seven degrees best.

*Pacemaker Seaplane.* Pre-war model builders will remember the famous *Pacemaker* kit which Irwin Ohlsson designed. The original gas model was a double-sized edition of his fine flying rubber model. It won the California Championship held at the State Fair in Sacramento 1937, winning a Gold Medal First Place. This medal is a replica of the State Seal. The victory was won using a newly designed engine, so that it later was sold as the Gold Seal and was very popular. Model in the picture is a *Pacemaker* built in 1938 by Irwin and adapted to pontoons. It was flown very successfully many times at Puddingstone Dam by Mr. Ohlsson and chief pilot of American Airlines "Hap Russell." Thus the A-A insignia.

Mr. Ohlsson gives the credit for designing these floats to the late Dan Bunch (manufactured Tiger and Challenger engines). He was about the first to try gas seaplanes and developed these very simple but efficient floats which were sold in kit form. The front floats consist of a right and left unit. Sides are sheet balsa but the outer edge on the bottom rises more steeply as it goes forward. It is about one-quarter of an inch higher in front. This prevents ship from digging in should it circle either way on take-off.

The cross section is 3" wide at step and 2-1/2" deep. Step is one-half an inch deep. Float length is 21" and tread is 16". They are mounted with two degrees incidence. The rear float is not used on take-off and is clear of water, but upon landing the wind may cause tail to drop, and this is all it serves. It is a tear drop section about 7" long and 2" wide and mounted at two degrees incidence. All balsa construction.

Incidentally, the front floats are double-planked on bottom with grain 45 degrees to each other. Floats and ship are silk-covered.

Wing airfoil is an M-6 at two degrees incidence. Tail section is the symmetrical M-2 set at zero degrees. Motor was mounted radially with one degree downthrust and one degree right thrust. Rudder had a thread adjustment for changing circle. Model takes off in about 60-foot run, flies right under power, gliding left and very flat for realistic landings.

*Open Record Class A R.O.W.* Lew Mahieu of Long Beach, California, established the open record May 16, 1948 with a mark of 22:1. This is a three flight total which was comprised of two ten minute maximum flights and a 2:1 flight.

The ship is a slick-looking pylon model with elliptical wing and tail plan form. Wing has very little dihedral in center which gives the maximum lift. Tips are turned up sharply to provide stability. Front main float is built up of balsa and landing gear strut attached to firewall. It is 1-3/4" x 4-1/2" x 9-1/2". Has a step 2-1/2" from the back end, and this step should be at least 2" forward of the c.g. Float is mounted with five degrees incidence. Two rear floats are attached to bottom side of the tail tips by rubber bands. These floats have dress pins imbedded near each top float corner to hook the bands on and over tail top surface. They are built up of balsa. Each float is 1-3/4" x 2" x 4-1/2". All floats removable. On the record flights the ship was powered by an Arden .19 engine with a 9" diameter prop, and using *Supersonic* fuel. Average engine run was 17 seconds.

This ship is now produced as the R.O.G. *Zeek* kit in several classes and has become famous for its contest winning qualities.

*Flying Boat.* The very active Portland, Oregon modelers have several flying boats among their hydroplanes. Homer Snyder built the nice 5' 10" modified *Flamingo* design. Homer's ship is a beauty upon take-off and runs less than a hundred feet. In the air it looks like the big boats and lands smoothly due to a flat glide. The original *Flamingo* design has been changed in several ways to make the ship fly better. Engine nacelle that was high on the wing has been lowered. Front nacelle former is mounted on the front main spar and is the firewall. It is one-eighth plywood. A balsa one-eighth thick former mounted on wing rear spar is used and nacelle planked with strip balsa. The Orwick .29 is mounted inverted so that there is just enough prop clearance over hull.

Sponsons did not work too satisfactorily in the original position as they had tendency to "dig-in" especially if waves were too big. Also they have to be too big for actual support without tipping to one side or the other. Homer removed the sponsons and relocated them above and slightly behind the old position. This new set-up was superior in the water tests as the boat would go in any direction the water rudder was set and floated as level as one could ask.

Harry has had good take-off performance using 24" balsa outriggers with side pontoons 2-1/2" x 10" long. These outriggers are from balsa 1" x 2" and have streamlined section. The side pontoons are mounted with a five degree nose-up angle.

Airfoil on Homer's ship is the Clark Y set at three degrees incidence and the tail is a symmetrical section set at zero. All the Portland fellows use all-balsa wings and tails as they don't leak water and can be made as light as conventional construction. Also stronger and will not warp. They build these surfaces as straight as posible since they do not use wash-in nor wash-out. Rudder tab set to right for offsetting torque. Hull is a built-up balsa frame planked with sheet balsa. Covered with silk to toughen plane and give a good foundation for painting.

*Western Open Champion R.O.W.* Don Donahue won first place with his .09 Arden powered pylon model against all classes of models in the Western Open. His ship was smaller and lighter than most other entries, weighing only 11-1/4 oz. with floats. On an overcast day with no wind, Don's ship was the only model able to ride a thermal due to its light weight. It turned in a 17 min. o.o.s. flight on the first flight and could possibly have set a new National record had it been retrieved in time for second and third flights. Secret of quick take-off lies in the float design which has been successfully used by fellow Thermal Thumbers. John Kiener and Andy Petersen of the club developed a chart on "scientific float design" which appeared in April, 1950 Model Airplane News. From this can be determined size of floats for any size ship. Front main float looks like a flat-bottomed airfoil with some of the rear portion cut away. It is 1-7/8" x 4-1/4" x 8-1/2" and mounted with seven degrees incidence. Tail floats are mounted two inches below tail. There is a nut plate in each one in order to adjust the float for different angles. This necessitates making one left and one right float. They also have a flat-bottomed airfoil profile. Original ones were set at five degrees incidence. Each float is 1-3/16" x 1-5/16" x 5-5/16". All floats are built-up balsa. Don's model was convertible to R.O.G. and best flight of 25 min. was made. Center of gravity is 78 per cent back of leading edge on both R.O.W. and R.O.G. Wing airfoil is similar to the N.A.C.A. 4412 and set at three degrees incidence. Horizontal tail is a flat-bottomed airfoil with 10 per cent thick maximum camber. It is set at two degrees incidence. Rudder is mounted straight ahead. Motor is mounted with two degrees left thrust and no downthrust. Left wing has two degrees wash-in (trailing edge down) at outer dihedral break. The ship climbs straight ahead after running less than one ft. on the water during take off. When motor stops, the increased drag on the left wing causes ship to glide in flat left circles.

## Storey's 51 Team Racer

(*Continued from page* 15)

Cut the elevators and groove them for the *Veco* control horn unit. Bend the stiff wires so they have the same angle as shown on the plan. This will make it easier to install and give more room for the pushrod. The hinge is made from two pieces of aircraft pinking tape, or similar material, sewn down the center. Use glue to securely fasten it to the stabilizer and elevator.

The control plate is a two-inch commercial unit. Its mounting is a short piece of wing spar, undercut slightly on the lower side to give clearance for the plate and rods and just wide enough to go between the engine mounts. Now is the time to determine exactly what kind of cut-off you are going to use. It will be easy to make the connections and figure its best position for accurate action. The unit illustrated is the K-B Sure

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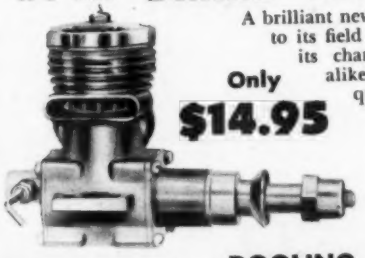

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Stop modified to form a right angle from its mounting on the venturi to the tank. With this placement a short straight fuel line is possible. As the control plate will be covered in the finished model, you might make an adjustable trip lever so that positive changes can be made.

The gas tank, if made according to the usual method, a shim brass wrap-around with end plates, will fit tightly into the tank well. As in the plan, the filler and vent should come straight forward then out to the side. The pick-up tube should be placed about half way back in the tank and just off the bottom. The outside connection should fit the engine and cut-off arrangement.

The dural landing gear has proven a good looking and really tough gear for hard use. The drawing can be enlarged and traced on the metal. Notice the grain of the dural before you begin work. It always runs with the printing on the sheet. Lay out your gear so the grain will run the long way of the pattern. After cutting, file and smooth all angles and sharp corners to eliminate fatigue cracking. Mark and drill the axle and mounting holes allowing clearance for 6-32 and 4-40 screws respectively. Bend the gear on the dotted lines being careful not to put sharp angles at any point. A hard wood block with a rounded edge placed in the vise with the dural when bending will assure a proper radius.

The tail skid is the usual looped wire type used on team racers. If you are flying on hard surfaces it would be advisable to make this unit replaceable. An additional loop is bent at the mounting end and attached to the fuselage with a 4-40 screw. A small hard wood block or dural plate threaded for the screw will do the trick.

The top and bottom blocks can be formed now as the fuselage should be well dried. Place each block in its relative position on the slab sides and with a sharp pencil trace the outline shape of the fuselage. Cut them out and sand until the sides are straight up and down when held in their right place. A one-eighth of an inch square notch is now cut along the outer side of each block so that it will fit both inside and on top of the slab sides. Cut the profile view on each block, and while holding it in place, round and smooth to shape with sand paper. Only the top forward block was hollowed on the original model. Notice on the plan how the balsa is glued onto the engine mounts plus the sides giving maximum strength and clearance for the engine. By using this notching system you will be able to get an almost elliptical section on the fuselage and not reduce its ruggedness. Do not cement the parts together now.

The cowl is a medium hard block hollowed out to a wall thickness of three-sixteenths of an inch. Two air openings with louvers on both sides are used in connection with baffles to direct the air flow. The air is divided as it comes into the cowl, most of it going over the fins for cooling and out the vents. The upper opening and baffle directs the air around the case and to the venturi which needs plenty of cool air. This little extra work will pay off as the engine will run longer and more consistently on the same amount of fuel.

The spring cowl fastener is a quick and efficient system to use on team racers for easy entry and inspection of the engine compartment. It was introduced by Orm Sutter in slightly different form several years ago and is now a common fixture. Basically it is a tension spring wound around the tubing which acts as a guide for the hook and outward operating end. The unit is finished and installed except for the lower washer which is then soldered in place. Rotating the wire 90 degrees will unlock or lock the fastener as desired. Dowels fore and aft keep the cowl from shifting position.

To begin assembly on the *Quest*, cut a one-sixteenth of an inch slot in the fuselage sides for the landing gear below the plywood box. Slide the gear in place and line it up. Mark and drill the plywood for the mounting screws. Now assemble all the parts with rubber bands and test balance. Just lay the wing panels on top of the fuselage during these tests. Be sure the engine and all accessories are in their approximate position. If the balance is about where the leading edge of the wing will be when installed, use the wing spar location as indicated on the plan. Glue and paint will move this balance point back to its proper place. If it is tail heavy, you can hollow the rear blocks or move the wing a little to the rear.

When you are satisfied with the balance, cut the three-eighth of an inch square hole in the fuselage sides for the wing spar. Note that the spar is flush with the bottom of the mounts. Make two small slits for the lead out wires in the left side through the mount. Cement the spar securely in place. Make the gas tank box from scrap balsa. It is cemented to the bottom of the wing spar. Glue the wings in place making sure the leading and trailing edges are even with about one degree of incidence. The bellcrank unit, its two push rods, stabilizer, and elevator, are cemented in place after it has been adjusted to give proper control. If the control wires are buried in the wing, assemble the wing, bellcrank, etc., at the same time. Bolt the landing gear in place tightly. Glue in all the blocks as pre-fitted, and then the rudder. Work the leather fillets around the wing and tail. Fill in the small open area below the firewall and above the landing gear with scrap balsa.

Finish sand all the surfaces when the model has thoroughly dried with fine paper. Apply several coats of thinned dope and then cover the entire model with lightweight rubber band tissue. Only a little filler is needed before color may be added. Cut the canopy to fit and make a base for the pilot. These will go on after the painting is completed. The original *Quest* has a solid California orange color with the numbers and lettering in black and white for trim. Synthetic enamel or a fuel proof dope will provide a good finish. Waxing over the decals will help protect them when flying.

Testing will be relatively easy. Fit your team racer for flight and make a set of 60-foot lines. Check your engine run and cut-off device thoroughly. Don't send any airplane up on the test hop with a poor engine run or one that is liable to quit at any time. Adjust it carefully, but not for peak speed. Keep it a little rich on the first flights. Now is when the cut-off may prove invaluable. If something goes wrong, don't hesitate to stop the engine and save the model for future flights.

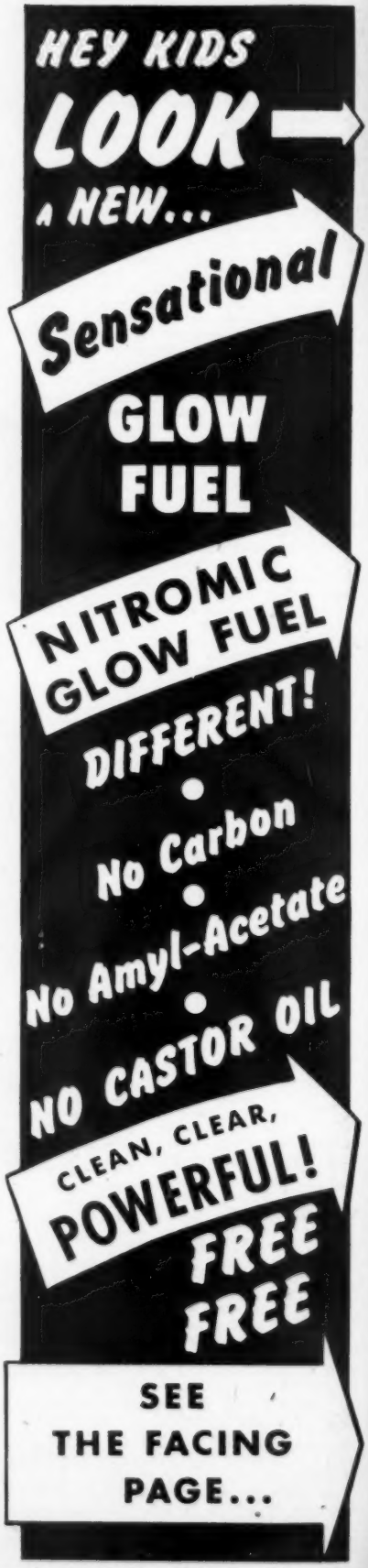
To obtain the optimum performance from your model, experiment with the fuel and propellers you will want to use. A very high speed means less distance to the tank full. Keep slowing down the rpm's until the team racer can maintain a good speed and complete the laps you feel to be the maximum. This year every model will fly in a five-mile heat race to qualify for the main event. On the coast, the average top speed for models in competition is between 70 and 75 mph. This is not too low when you see these airplanes complete about 50 laps, or almost four miles, for one ounce of fuel. Usually, the fastest models are on the ground the longest and actually average the lowest speed for the entire five- or ten-mile race. Practice and experimenting before real competition will mean more consistent and prize-winning flights at the "big" contests this summer.

The kit of this model being manufactured by Berkeley has the same landing gear as the *Key*, my earlier team racer. The kit also has a metal cowl, while the original model had carved and hollowed balsa blocks.

BILL OF MATERIALS

2 - 1/8 x 3 x 36" Balsa Sheets (hard)
2 - 3/8 x 3 x 36" Balsa Sheets (soft)
1 - 5/8 x 1-1/4 x 18" Balsa Block
1 - 1 x 1-1/4 x 18" Balsa Block
1 - 2-1/4 x 3 x 5" Balsa Block
1 - 3/8 sq. x 30" Hard Wood
2 - 2" Treaded Wheels
1 - 2" Bellcrank
1 - 1/16" dia. Steel Wire 36" long
1 - Veco Elevator Horn
1 - Fireball Canopy
1 - Cut-off
1 - .050 (25ST) 3 x 10" Piece of Dural
1 - 1-3/4" Spinner
1 - 4 x 6 x 1/8" Plywood
8 - 3/4" 4-40 Machine Screws and Nuts — Round
2 - 3/4" 6-32 Machine Screws and four nuts — Oval Head
1 - 28" Length of Leather Fillet Material — Large
1 - 12" Length of Leather Filler Material — Small
1 - .008" x 2-1/2" x 6" Brass Shim

END

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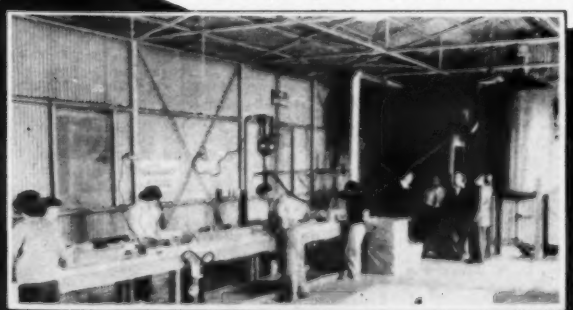

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## Pogo Stick

(*Continued from page 30*)

panels. In any event the spars, leading and trailing edges are fitted to the dihedral angle by trail and error. The dihedral joints and the main 3/16" x 3/8" spar, are reinforced on both sides with 1/16" plywood braces. Small C clamps are helpful here in getting a good glue joint. The wing tip outlines are cut from soft 1/8" sheet balsa, with the grain direction as shown on the plans. Sand the framework to remove saw marks to insure a smooth, efficient wing.

*Propeller*—The propeller shown is quite low pitched, but was used with good results on several models. The power and prop shown give a fast climb and a motor run in the neighborhood of 60 seconds when fully wound.

Any one of several folding mechanisms on the market may be used but the one shown on the plan has been used successfully for a number of years. It is strong, durable, and maintenance so far has consisted of re-binding with thread. Both the front and rear of the prop hub are reinforced with sheet tin and wrapped with thread. The prop blades can be strengthened by covering with tissue or silk and doping several times.

The nose block is carved from hard balsa, the grain running lengthwise. The block is also reinforced with tin thrust bearings on both front and back to hold nose block adjustments.

A safety pin type compression spring was utilized to engage the prop tensioner wire, which extends through the back of the block. By stopping the propeller at the same point each time, the same glide circle is assured on every flight.

*Dethermalizer*—The hinge shown does not allow the tail surfaces to be removed but assures alignment. Do not spare the glue on binding the 3/32" O.D. brass tubing to the 3.16" cross brace or in attaching the cross brace to the fuselage longerons. When bad landings have been encountered with this model, the tail surfaces usually break free with little or no damage. By notching the rudder the angle of elevator travel can be varied—no limit string is needed.

Ed Lidgard, 1949 Wakefield team member, found that 1/4" uncovered upholstery welting cord made an excellent slow burning fuse. Ed demonstrated its merits to the author at the '50 Nationals and it has been used ever since. This type cord can be obtained at any upholstery store and costs about three cents a yard.

*Covering*—The whole model should be covered with Jap tissue, all red for best visibility. For the extra strength required, the fuselage should be double covered, with the grain crossed on successive layers. Tissue grain on wing and stabilizer should run lengthwise of the span. To keep the tissue from becoming brittle with age, add about four drops of castor oil to each two ounces of dope. This mixture produces a high glossy surface, with a minimum of weight.

*Wing Mount*—The front and rear wing mount wires should be bent to the shape shown on the plans. Bind the mounts to the fuselage with rubber bands, and fit the 3/16" x 3/8" hard balsa runners in place. With a straight edge placed on top of the runners, make adjustments till the straight edge and the leading edge of the elevator are parallel. When this has been accomplished bind with thread and cement liberally. When thoroughly dry, the mount may be removed if desired and the runners given several coats of dope for extra strength.

*Flying and Adjustment*—The finished model weighed 9.5 ounces complete with 28 strands of 3/16" flat brown (T-56) rubber approximately 38" long. The motor should be lubricated and pre-wound several times before attempting to apply maximum turns.

All testing should be carried out during the calm evening hours as little can be learned by flying a new model in the wind. A few hand winds should be put in the motor to engage the tensioner and keep the motor from bunching. Next the model should be hand glided by gently launching into the prevailing wind direction. The plane should glide without showing any tendency to nose-up or stall. To correct a stall the wing should be shifted back slightly and/or the trailing edge

of the wing raised 1/32" or more, until the stall is damped.

Most models with a parasol wing configuration have a tendency to stall under power; therefore, before power flights are attempted, slip a 1/16" shim between the nose and the noseblock. This adjustment may be built into the noseblock when the tin plates are positioned. The rudder tab should be offset slightly to give a right circle glide. The first power flights consist of approximately 200 turns, applied with a converted hand drill having a 4:1 ratio. As low-power flights prove satisfactory, more winds should be applied. When properly adjusted the model should have a steep, fast, right hand corkscrew climb for the first 30 seconds of motor run, and a climbing cruise till the tensioner engages. Calm evening flights should exceed 3-1/2 minutes if adjusted to the maximum.

All models of this series were found to be easy to adjust and maintain. This is not a fair weather flier but performs equally well in windy or gusty weather, prevalent in the southwest.

Many hours and evenings are required to properly adjust a contest model. Very few models finished the night before a meet, ever win the contest. Start building early and fill up that trophy case!

## For the R. C. Fan

(*Continued from page 27*)

double-throw slide switch is that it serves the same purpose and weighs half as much (1/10 oz.) as two slide switches. The only conversion necessary is to cut off the two lugs on one side of the switch since all that is needed is the double-pole, single-throw. This type of switch is made but is difficult to find.

The rheostat used is the small button type as supplied with the *Aero-trol* equipment and the meter plug is the small phono plug-in socket that comes mounted on a Bakelite disk.

*Receiver Installation*—The receiver in this ship, as you probably noticed, is not the usual rubber-band suspended set-up. Instead I mounted the receiver with the relay side up and forward on a sponge pad, part under, and part in front of the receiver protecting the relay, as shown in sketch. Of course this should be so situated where there is solid bulkhead forward of the receiver and a solid floor below it. Very often it is mounted over th top of the B supply batteries. There should be a hook on each side of the cabin at the floor level about mid-way the length of the receiver so that a retaining rubber-band may be stretched across the top of the receiver keeping it firmly down and forward against the sponge pad. This installation might seem unusual or different but actually it is not. The receiver so mounted can withstand a tremendous amount of punishment insofar as damages are concerned. Another important fact is that you can go out flying in an afternoon, tune up once and retain the original tuning frequency even though you might spin the ship in two or three times during the day through carelessness or some other foolhardy maneuver. Another good tip is to take model cement and coat the tank coil of the receiver before you tune up, so that the glue forms a shell over the windings and keeps your receiver frequency stable.

If you are the kind of person who likes to build your own gear, take your receiver apart and make yourself a new chassis, replacing everything so that all your components are on the top side, which makes it a more suitable type of receiver for sponge rubber mounting than the Aero-trol which has the tube underneath. See sketch.

*Escapement*—As you notice the escapement is mounted in the rear-most portion of the cabin. Many people prefer to mount an escapement in the tail end of the airplane which gives you the advantages of short mechanical linkage and an escapement rubber band which may be extended as far as the nose block of the airplane. (I've seen them.) The disadvantage of this is that on a large plane the escapement is installed at such a location that even if it were made accessible it would only mean another hatch opening or hole at the tail end of the aircraft and longer escapement leads making the wiring more complicated and spread out. On a


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smaller ship such as an AA model, the same installation is almost impossible since the maximum width of the airplane at the cabin may be about 2-1/2"; at the tail it couldn't be more than a half inch wide. The escapement used in the model is a Control Research escapement which is mounted on a small piece of 1/16" plywood with a bracket and bellcrank fabricated as shown in the drawings and mounted above the escapement. The 1/16" wire shaft which the bellcrank pivots on should be directly above and in perfect alignment with the shaft of the escapement. The bellcrank is bent out of .040" music wire and soldered to the 1/16" I.D. brass tube. The bracket on the extended arm of the bellcrank is left unsoldered until the complete linkage is assembled in the plane and the proper amount of leverage or turn is determined, then a drop of solder will hold it in its proper place. The rudder on the *Tiny Rocket* is 3/8" wide and the full height of the vertical fin. The movement is about an 1/8" in each direction.

*Transmitter*—When I first started with r.c. a number of years ago, it seemed to me that the r.c. builder was ham strung with a maze of wires and poles which took anywhere from ten minutes to a half hour to set up before he could even think of looking at the model. Realizing this handicap I started looking toward the whip antennae as the answer to simplification of the transmitter gear. (According to the experts I was told you could never get range from a whip antennae. They still tell me this as they watch my ship going through its paces over three-quarters of a mile away.) When I started to experiment with r.c. speed models, I found that launching the model took me as much as 30 to 50 feet from the transmitter so that by the time I returned to it the model was a quarter of a mile away and disappearing fast. After all when a model flies between 50 to 60 MPH a quarter of a mile only takes 15 seconds.

Eventually I worked around to the transmitter gear which I use today. It is a hand-held portable transmitter with an automobile whip antenna. It measures 3" x 3" x 12" high and contains an *Aerotrol* transmitter, two 67-1/2 volt batteries and four pencells in parallel for the filament battery. To convert a standard tranmitter for portable operation, ground one end of your antenna pick-up loop to the transmitter chasis and run the other end of the pick-up loop through a 75 or 100 mmfd. air-padder condenser to the antenna. The antenna can be purchased at any automobile supply store and trimmed to about 56-1/2" fully extended. To adjust the transmitter coupling for proper loading, a field strength meter is a great help although not entirely necessary. Loading can be accomplished by putting a 0 to 50 m.a. meter in series with one of the B supply leads, and loading the transmitter about 85 to 90 per cent of its maximum plate current which usually runs, for the *Aerotrol*, between 25 to 30 m.a. The loading should be accomplished with a minimum coupling of the pick-up loop and a maximum coupling of the air-padder condenser.

*Procedure* Step 1—Insert a 0-50 m.a. meter in your B supply lead. 2—Turn your air-padder condenser until the plates are fully meshed. 3—Start with pick-up loop out of coupling and push pick-up loop in, observing your plate current until it reaches the peak or maximum. 4—Take a screw driver or alignment tool and uncouple the plates of the air-padder slowly until you've dropped about 10 or 15 per cent of your maximum m.a.

The air-padder condenser plates should not be out of coupling more than 10 degrees. If they are then you have loaded too much. Pull pick-up loop out slightly and repeat procedure with the air-padder.

When field checking the transmitter hold the antenna vertical and make long field checks. When flying, hold the transmitter in the crook of your arm with your antenna at about a 45 degree angle from the ground and operate the push button with your other hand. Always face the airplane when flying so that the end of the antenna is never pointed at the plane.

At the last Nationals at Dallas, Texas, on their tremendous runways I field-checked this portable transmitter for over a half mile ground range (which is easily doubled in the air). I've flown a five-foot radio job in the rain with it until the plane was practically out of sight, about three-quarter of a mile away and 60 feet high always under perfect control. It is small enough to be held in one hand while you launch the plane with the other, and another advantage is that it fits into a standard 14" tool box along with the props, batteries, small meter and the rest of the usual model supplies. The antenna is removed and clipped to the outside of the box, and upon your arrival at the flying site it takes but a few minutes to take the transmitter out, plug it in and extend the antenna. This is a great convenience with any size plane you might be flying, but, with an AA radio job it is a most valuable piece of equipment since it is even possible with the plane under one arm and the tool box in the other to travel by any public conveyance as I've done when a car was not available.

## Report from the West

(*Continued from page 4*)

(which was a bit on the heavy side for trial work), a metal wing with mag spar, and the regular balsa carved top. We enjoyed the novel fuel tank that Chuck had in his A job. It was a synthetic rubber balloon with another balloon over the top for pressure. We also noted that when the balloon was placed in the ship it was pretty well filled and gave the engine a bit of force feed. For some reason or other, the engine would richen up slightly at the end of the flight when the pressure against the fuel diminished. Nope, we can't figure this one out either. It seems that it should work the other way around. We inquired of Schuette as to what kind of fuel he was using and were amazed when he told us that it was a mixture of about three different brands that had been kicking around the house for a few months. If our memory serves us correctly, a 7-9 Tornado propeller was used for this epic flight.

• • •

Chet Schmidt, also of the Hawthorne Sky Burners, had one of his famous flying wings out for some test flying. Chet has been developing flying wings for some time, and it looks like the guy knows what he is doing. The wing job we saw was called the *Schmoo* and was powered with an Ohlsson .23. Test flights were made with a Torp .29 as well. The ship weighed one and three quarter pounds and clipped off better than 50 mph with the Ohlsson .23. Maneuvering was very fast and no stall tendencies were noted when tight stunts were tried. Chet is still experimenting, and we wouldn't be surprised to see more and more wings show up in future contests.

• • •

One of the newer modelers that has been making regular appearances at the free-flight fields lately is Grif Davies. We have been watching this youngster for quite a few weeks flying U-control and free flight jobs from his wheel chair. Grif's flying has been plagued with bad luck for quite some time due to gravity or gremlins taking over at the wrong time. Quite a few of his ships went "west" but he always had another one out the next week and tried again. His latest model is a Berkeley *Super Brigadier* with a Bullet for power. We would like to add at this point that Grif's milkman whom we know as Ray, takes Grif and his mother out to the field on Sundays for the flying sessions. Nice going, Ray. On the first attempted flight of the *Brigadier*, after a few hand launches and adjustments by Tommy Moffitt, it really took to the air. The climb was perfect as was the glide. The engine run was about 27 seconds but whatta flight! Tommy Moffitt took over the recovery duties which required quite a bit of leg work, but he was amply repaid by the big smile on Grif's face. Keep up the good work Grif Davies, and you had better put a dethermalizer in that ship.

• • •

The old saying about crawling before walking doesn't always seem to apply when it comes to model building and flying. We are nosing around one of the flying fields a time back when one of the U-control models caught our eye. This particular ship belonged to Howard Bay, a new modeler. Howard had built a few models and didn't like the way that some of them came in at him when the lines became a bit slack, so he decided to do

something about it. His newest ship, and she's a sharpy, has reverse working elevons on each wing right next to the fuselage. When pressure is applied on either control, up or down, the elevons are actuated and keep the outboard wing slightly down all of the time no matter what manuever is being tried. We were very interested in the control mechanism and found that two bicycle spokes had been used in conjunction with the elevon control. These worked out very well as they could be turned for adjusting either or all of the controls. We were asked to make a test flight and jumped at the chance to see how everything would function. It was quite an experience flying this ship, which Howard calls the *Joe McGee*, a construction term meaning anything. It was quite windy when we had the handle so a little caution was used at first but after a few "feel out manuevers" we cut loose and wrung it out. Deliberate loops and pull-outs were made into the wind but the elevons took it in stride. There was a slight amount of over-control on the wing elevons, causing slight wing dip and this can be easily remedied by moving the spokes over one notch in the bell crank. To get back to the saying about crawling before walking, Howard Bay decided he didn't like any model of his coming in at him in any kind of weather, so he did something about it. The *Joe McGee* is powered with a Fox 35 and weighs 37 ounces. We would like to add that this ship goes through the pattern with no trouble at all. It seems that the newer modelers are all coming up with new gimmicks on their models that have the old-timers a bit on the red faced side. Maybe the older flyers should make a survey once in a while as it might help them overcome some of the bugs that they run into.

• • •

The Juniors are still at it. These young flyers are still in there knocking out high times at free-flight contests with amazing consistency. At the recent Bakersfield contest, John Werts Jr. put his AA *Zeek* into the air on three flights for a 28.37 total. John Andrews of Lawndale and a member of the Hawthorne Sky Burners turned in a very nice 19.27 set of flights. Werts and Skippy Fattig each amassed 46 points to tie for sweepstakes. Another lad who has been showing his heels to the other modelers is Bob Isaccson. In th hand launch glider event, this 16 year old enthusiast took 1st by turning in 10.05 on his attempts, and then went on to take 2nd in the rubber event with 9.46. As we said before, the Juniors are still at it.

• • •

One of the most beautiful ships that graced the flying scale (F.F.) circle at Bakersfield and won first place in that event was owned and flown by Ray Van DeWalker. Ray is formerly from Hampton, Virginia, and belonged to the Brain Buster Club. His ship was the Berkeley Aeronca *Sedan*, and it was powered with a *Wasp* .049. Ray is now working at North American Aircraft as an aeronautical engineer. The new AA PAA Load ship *Bootstraps* made its appearance in great numbers and they turned in some mighty fine flights.

• • •

Dennis Alford and Bobby Erhardt took first and second places respectively in the finals of the Solo Tournament sponsored by Jim Walker. These two youngsters were really in there pitching all of the time, and the battle for total points was very close. Both of these hard working lads were well rewarded with cash, trophies, merchandise, and they each have a flying trip to Portland coming up. In Portland, Jim Walker will play host and show the boys a wonderful time. This Solo Tournament will probably be the forerunner of contests in different sections of the country, so watch for future announcements.

• • •

The Wakefield eliminations for Southern California were held April 22nd at Fontana Airport. This contest started at 5:45 a.m. and was stopped at 8:00 a.m.; flying was resumed again at 6:00 p.m. and finished after one more round of flights. The top five winners of the meet were as follows: 1st Red Everitt, 2nd Don Donahue, 3rd Bill Tharp, 4th Andy Faykun, 5th Ernie Wrisley. If you'll look back a few issues you'll note that we mentioned Red Everitt's very slick and beautifully designed models.

## The Sizzler 40

(*Continued from page 21*)

at these points. Rib alignment will occur automatically if care is taken when the slots are cut. All spars are 1/16 x 1/4 and 1/16 x 1/8 stock, and the wood chosen should be fairly springy. Dihedral gussets are applied at all dihedral breaks and so the rib slots must be widened to the dotted lines as shown on the rib drawing for the four ribs that pass over these gussets. After setting the dihedral, the leading edge should be carved and sanded into shape. Small pieces of cloth are cemented over all the breaks to reinforce them. Add the required gussets and tips to complete the assembly. Tips are formed from 1/4 sheet balsa.

Stab construction calls for the addition of sub-rudders, and so you will find the necessity of double rib spacing at the point where they mount. The spacing between these ribs is 1/16 of an inch. Do not add the subs until the stab is covered. The bottom rear section of the stab is filled in with 1/16 sheet. Two spars are added to the top of the center three ribs for stiffening purposes. Use 1/16 x 1/8 strip wood mounted on its flat side. Note that the ribs are not inlet into the leading edge on the stabilizer.

To prevent changes in rudder setting which might be caused by the operation of the dethermalizer, it was felt that the rudder should be permanently affixed to the model. A normal "pop up" tail would be complicated in doing this, and so the stab was hinge mounted on the bottom of the fuselage. This hinge is attached to the stab platform so use plenty of cement when making the platform. The platform is 2" wide and is built over the fuselage pieces (H). A hinge is made out of brass tubing and paper clip wire. Use cloth reinforcement to hold this hinge secure to the model. Small grommets are built onto the rear of the stab to engage the hinge and supply break down for ease of transportation. Note the manner in which a rubber band is passed through the rudder and looped over the hinge wire ends to swing the stab around to a "pop up" position.

The rudder is hard 3/32 sheet which is tapered for smooth fairing. Care should be taken in adding this part to the ship because it is used to form the rear section of the fuselage into an inverted T beam. Done properly the thin rear section has strength much greater than its appearance indicates. Sub-rudders are cut from hard 1/16 sheet. Cut-outs are made to pass around the stab spars so that the stab will not be weakened by spar cutting.

Covering on the original calls for tissue on the flying surfaces and *Silkspan* on the fuselage. After water shrinking the covering, the doping process can be undertaken. Dope is thinned to a two parts thinner and one part dope mixture and is plasticized by adding three drops of castor oil for every ounce of thinned dope. Five coats of this mixture are applied to the wing and stab and seven are used on the fuselage. Cover the rudders and pylon with tissue for color, strength and finish. Two small keys made of 1/16 x 1/8 strip are added to the center of the wing.

Use pins or thin piano wire to make two small hooks for the fuselage sides. Mount these in front of the stab on the bottom longeron. These hooks, plus a hook at the rear of the fuselage, are for the stab hold-down rubber. A fuse is made by dipping butcher's cord into a strong solution of saltpeter. Insert this between the hold-down rubber and the brass tube of the hinge. This fuse burns at the rate of one inch per minute with only a slight variation. The rubber loading for the "pop up" action should be coupled to the hinge ends and the dethermalizer hook-up is finished.

Fuel proof the front section of the fuselage and the pylon only. At least two coats of your favorite proofer should be applied. Careful wiping of the model after each flight will prevent deteriorization of all other surfaces. But for the fact that fuel spills over when the tank is filled, or splashes when the engine is port primed, fuel proofer could be eliminated.

Ready to fly? Find some tall soft grass and try a few test glides. Make all necesary changes in incidence on the wing. Changes in stab angle will alter the thrust angle also. If a stall is noted, it should not be corrected


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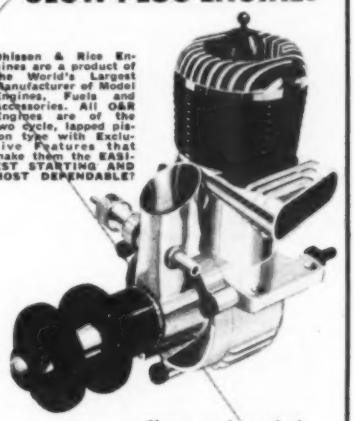

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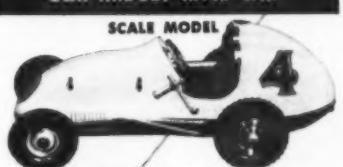

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| 1/16x1/4 | 2c | 1/4x5/8 | 7c | 1/16x2 | 10c |
| 1/16x3/8 | 2½c | 1/4x3/4 | 8c | 3/32x2 | 12c |
| 1/16x1/2 | 3c | 5/16 sq. | 9c | 1/8x2 | 12c |
| 3/32 sq. | 1c | 3/8 sq. | 7c | 3/32x2 | 13c |
| 3/32x3/16 | 2c | 3/8x1/2 | 8c | 3/16x2 | 14c |
| 3/32x1/4 | 2½c | 1/2 sq. | 10c | 1/4x2 | 16c |
| 3/32x3/8 | 3c | 3/4 sq. | 15c | 5/16x2 | 18c |
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| 1/8x3/8 | 3c | 2x2 | .85 | 1/16x3 | 14c |
| 1/8x1/2 | 4c | 2x4 | 1.60 | 3/32x3 | 16c |
| 5/32 sq. | 3c | 2x6 | 2.35 | 1/8x3 | 18c |
| 3/16 sq. | 2½c | 3x3 | 1.80 | 3/16x3 | 22c |
| 3/16x1/4 | 3c | 3x6 | 4.00 | 1/4x3 | 25c |
| 3/16x3/8 | 4c | 4x4 | 3.50 | 3/8x3 | 32c |
| 3/16x1/2 | 5c | 4x6 | 4.25 | 1/2x3 | 35c |

Beveled balsa trailing edges, 36" lengths

| | | | |
|---|---|---|---|
| 3/32x3/8 | 4c | 5/32x5/8 | 6c |
| 1/8x1/2 | 5c | 3/16x3/4 | 7c |
| 7/32x3/8 | 8c | | |
| 1/4x1 | 9c | | |

Propeller Blocks

| | | | |
|---|---|---|---|
| 8x7/8x1-3/16 | 8c | 18x1-3/4x2 | 40c |
| 10x1x1-1/2 | 12c | 9x1-1/2x2 | 15c |
| 12x1x1-1/2 | 14c | 10x1-3/4x2 | 25c |
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Testor A or B cement . . . . . 10c & 25c
Clear Dope . . . . . 1 oz. 10c, 2 oz. 20c, 8 oz. 60c
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Colored Dope . . . . . 1 oz. 10c, 2 oz. 20c, 8 oz. 75c
Red, Orange, Yellow, Green, Lt. Blue, Metallic Red, Metallic Blue, Black, White, Silver, Olive Drab
Music wire . . . . . 3 ft. .020 & .030, 3c; .035 & .040, 4c; 1/16, 5; 3/32, 10c; 1/8, 15c
Silkspan White . . . . . .00, 5c sheet; GM, 10c; 3 for 25c
Jap Tissue, Red, Yellow, Blue . . . . . 10c, 3 for 25c
Sky Sail, White, Red, Yellow, Blue . . . . . .2 for 15c
T-50 rubber, per ft. . . . . 1/32, 1/16, 3/32, 1/8, 1½c; 3/16, 2c; 1/4, 3c
Aluminum tubing, per ft. . . . . 1/16, 3/32, 20c; 1/8, 20c; 3/16, 20c; 1/4, 25c
Brass tubing, per ft. . . . . 1/16, 20c; 3/32, 20c; 1/8, 20c; 3/16, 20c; 1/4, 25c
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until the model is adjusted for a tight left turn. This saves time because positive incidence might be required after the turn is set. By blocking down the right hand side of the stab, you can produce a left turn. If this method is not desirable, you can cut a tab into the rudder and offset it to the left. With neutral rudder the model will climb in a right circle. Use enough left turn to produce a shallow left climbing turn. When the engine quits, the model will go into a tight left turn in the glide. Trim this glide until it is just on the verge of a stall and you're all set. Dethermalizers are mighty impressive looking things, but don't forget that they are useful too. Set this one and keep it short on all flights. Ninety per cent of all models are lost during test flights—I know. Even with a dethermalizer you'll be pooped chasing the *Sizzler!*

## Rubber Round-Up

(*Continued from page* 35)

the wing due to the large chord and smaller span. The airfoil used in the stabilizer is usually a Clark Y or a variation of it. This airfoil has a good l/d ratio and when using an undercambered airfoil on the wing, the stabilizer will stall last so that the model will pull out of a stall and not just flounder; a good rule to remember is to use an airfoil in the stabilizer that has slightly less camber than the wing airfoil.

An important factor in determining the stability of a model is the angular difference between the stabilizer and wing. The stabilizer should be set from zero degrees to one and one-half degrees, and the wing from plus three degrees to plus five degrees for proper stability. Some models will fly with the wing and stabilizer at zero degrees but they are often tricky to adjust. The average difference between the surfaces is usually about three degrees and this results in a model that will recover quickly from a stall or dive. To determine the best for your model, try various settings on both wing and stabilizer and see which results in the smoothest flights.

To cure a diving tendency that often shows up in a long fuselage model, try packing up the trailing edge of the stabilizer 1/16" at a time until the dive disappears. On short fuselage models, stalling often shows up. In this case, try packing under leading edge of the stabilizer 1/16" at a time until stall disappears. This is assuming of course that the c. g. will be correct in both models. For a 33 per cent stabilizer, the c. g. will be at about 50 per cent to 60 per cent of the wing chord.

If there was ever a rule to go by when designing the rudder for your rubber model, it is whatever type you use, use plenty of area. Much of the rolling and rocking found in some rubber models can be traced directly back to the lack of rudder area. Whether your model has a long or short fuselage, put plenty of rudder on it! Generally, expresed in a percentage, the rudder should be between 14 and 18 per cent of the wing area with about 30 per cent of the rudder area below the fuselage. The area below the fuselage is important. This area acts much like the keel on a ship generally stabilizing the model and making it fly in a smooth pattern.

As to the contours of the rudder, this is strictly up to the designer but the rudder should be about one and one-half times as high as it is wide. While a very broad rudder looks good, it is ineffective because at high angles of attack a great part of it is blanketed out by the stabilizer or fuselage. This is often the trouble with a rubber model that will glide beautifully, but in the climb will rock the tail back and forth. Sometimes a model like this will rock so badly the tail will abruptly kick around, a wing tip slide off and then a violent spin.

Twin rudders are a little different from single rudders in that they also act as end plates on the stabilizer. Usually their total area is about 25 per cent more than a single rudder. They are very effective in that they are not blanketed out by the fuselage or stabilizer no matter what the angle of attack is. Their use is recommended on a model with a small stabilizer or one that has a retracting landing gear.

The cross section of the rudder is relatively unimportant. It can be flat or streamlined

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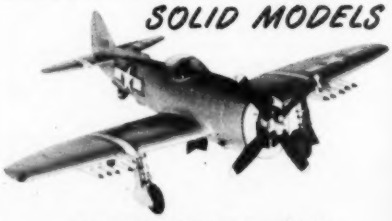

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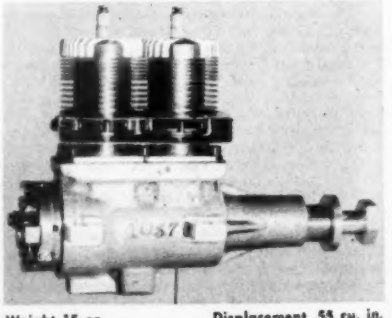

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and be equally effective. There are also cambered rudders which have an airfoil shape and are mounted so as to counteract torque. These rudders are tricky to adjust for and are not recommended for inexperienced designers.

Propeller design is the heart of the model but to set up exact rules to follow is nearly impossible. A propeller that is right for one model may not be right for another model of the same general size. The problem of pitch, diameter and blade area is far too complicated for the average builder, and even experienced builders can only guess at what size prop is right for a certain model. A set of proportions are given in this article (see drawing) that are intended only as a general guide. Generally the larger the model the smaller the prop becomes proportionately. The best thing to do is to carve a prop larger than you think you need and try it on the model. If performance is what you expect, leave it alone. If not, start cutting a little off each blade, perhaps an 1/8" at a time until the model climbs like you want it to climb. The exact size of the prop isn't the determining factor. The thing that really counts is how well you carve it, balance it and adjust for its limitations.

There are three types of propellers in general use, and they are: freewheeler, single blade folder, and double blade folder. There are many arguments both pro and con for all of these. The author has at one time or another used all of them.

The proponents of the free wheeling prop claim that it gives a better climb but will admit that it drags in the glide. Just why a free wheeling prop should give a better climb is difficult to understand because a folder can be built just as carefully and accurately, although it will weigh just a shade more due to the hinges. The free wheeler proponents will also claim that a folding prop changes the c. g. when it folds. It probably does, but you adjust for the c. g. with folded blades. It certainly doesn't hurt the climb to have the c. g. a bit forward anyway. The rubber as it runs down is continually changing the c. g. slightly but this doesn't detract from the performance.

The folder comes into its own during the glide as virtually all propeller drag is eliminated. The author has watched freewheelers and folders perform on a still cold day, and the model equipped with the folder certainly has an advantage in the glide. It is true that a freewheeler has a dampening effect on stalls, but only on very slight stalls. When the real stall does come, it is a whopper. Here too the freewheeler takes a beating as it is almost certain to break when the model hits or noses over.

A single blade folder is good too, simple to build and fold. It is however difficult to balance correctly and slips somewhat on the climb, particularly at high angles. The single blade folder should have a blade approximately 50 per cent larger in area than one blade on a two blade folder.

In determining the number of strands to be used in a rubber motor, it is possible to give a few general proportions. When using Dunlop 1/4" flat black rubber, one strand for each inch of propeller diameter, or 18 strands on an 18" prop. This is of course rather high power, and it will be sufficient for a fast climb in any type of weather. If you use T-56 1/4" flat rubber, about four strands will have to be added or a total of 22 strands for the same power. This is because Dunlop is 1/24" thick and T-56 is about 1/30" thick.

One thing to be watched when determining the rear dowel position for the rubber motor, don't attempt to put it in the extreme tail of the model or the c. g. will be too far to the rear. Rather you should proportion the rubber to the fuselage length. About 80 per cent of the fuselage length is a good general rule for a motor. Thus in a 40" fuselage you will have a 32" distance between the prop bearing and rear dowel; adding about 2" slack will bring the total motor length to 34". After the motor has been wound a few times it will stretch an inch or so, but the tensioner will still handle the motor.

The reason not much slack is used in the motor is primarily to allow the mechanical tensioner to operate when the motor is nearly run out and still preserve the trim of the model. The more slack that is added, the more difficult it is to control the tensioning


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so that the rubber doesn't spank the fuselage or bunch in the tail to spoil the trim. Also by keeping down the length of the rubber motor, a lot of extra weight is saved.

The best model in the world can be a complete dud if it is not adjusted properly, and here lies much of the success or failure of model design. Most any type of rubber model flies best in a right climb and right glide, because torque is a definite problem in rubber models, and a left climb (with torque) is extremely difficult to control. A shade too much left thrust and the model will roll and spin in. A right glide coming after a right climb gives a very smooth power-on power-off transition, and the model is really settled into the glide even before the prop stops turning. Adjusting a model is a fine art that has to be learned but a few hints will help: 1. Start the adjusting procedure by gliding the model straight ahead and shoot for a glide just verging on a slight stall; 2. Add right rudder to kill the stall and see that the model skids in rather fast, but not diving; 3. If the model banks at all, wash out the right wing tip by steaming the wing and holding it until it dries. This will give a skidding turn that really hooks thermals; 4. If the model does not have built in downthrust, add some before making the first power flight. All rubber models need downthrust; 5. Make first flight under low power (about 150 winds) and watch for any tendency to spiral to the right—the turn should be wide and smooth to the right; 6. If model shows a tendency to spiral in, add a little left thrust until spiral is gone. You may have to add more downthrust; 7. If model starts out with the left wing low and makes a bumpy right turn under power, take out some downthrust and add right thrust; 8. Keep working up to maximum turns and if model hangs in climb, either add downthrust or tighten the turn. Possibly both will be necessary; 9. Adjust your model slowly and try to think out for yourself what is wrong or how you can improve performance and apply it to the model.

One of the easiest ways to start designing your own models is to improve on a stock kit design or magazine design that you have already built. Look the model over carefully, and try to theorize what may be changed that will improve the model. It may be a new wing, or fuselage, or landing gear, or any number of things that may be done. In this way, you will gain experience and a lot of knowledge too in changing design.

If on the other hand you have a good model of your own design, try to improve it by changing it. The author started on Wakefield design in 1948 and is still changing the model trying to develop it even higher. It has already gone through three major modifications and many small ones with each change gradually improving the model.

## Pen-Pals

Jan Post, Lasarettsgatan 2B, Soderhamn, Sweden would like a correspondent in the United States. . . . Ron W. Roe, 19 St. Alphege Road, Edmonton, London, N. 9, England wishes to write to an American Modeler interested in free flight, semi-scale and scale. . . . R. Pattenden, 2 Perryman's Cottage, Northiam, Sussex, England would like an American pen friend. . . . Doug Dohlke, 878 South Park Ave., Oshkosh, Wisconsin would like a pen-pal between 14-16 years of age interested in experimental gliders. . . . K. C. Weigham, 80 Penny Park Lane, Keresley, Nr. Coventry, England is anxious to correspond with an American modeler. . . . Brian Harper, 166 Stafford Rd., Cannock, Staffs., England desires an American modeler as a correspondent.

EXCHANGE MOTORS: Jackie Crane, Box 305, Mesquite, Texas has a new Thimbledrone Racer, complete with motor and bridle, which he would like to exchange for a good diesel motor or a glow B or C motor.

SPECIAL REQUESTS: O. H. Will, 30 Cross St., Grahamstown, South Africa would like to contact a modeler who wishes to exchange plans of Schneider Trophy races showing radiators and giving color details. . . . Roy F. Oberg, 120 N. Hagadorn Rd., East Lansing, Michigan would like a pen-pal for the purpose of obtaining copies of *MAN* from 1934 through 1940.


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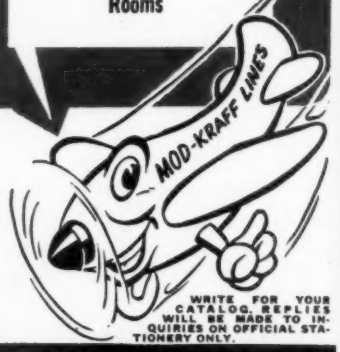


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## Planes in the News

(*Continued from page 13*)

Warden Aviation Co., the *Brisfit* is to be made available for display or exhibition whenever required. It was brought out of storage at the end of last year in amazingly good condition. Its *Falcon III* engine was sent to Rolls-Royce Ltd. for overhaul; it was in such good shape that a bench test was not needed.

Although 20 years had passed since Bristol turned out an *F.2B*, it didn't prove difficult to recruit a team of old-timers who had worked on the original craft. And Bill Pegg, Bristol's chief pilot, had flown *Brisfits* in the RAF after the war.

So on February 13, Pegg and the Bristol got squared away on the grass alongside the main runway. Three men linked hands, spun the prop twice. On the third try the *Falcon* roared into life. A tricky cross-wind prevented Pegg from doing more than taking off and landing again immediately, and the mist prevented anyone from seeing the proceedings.

The next day was better; Pegg made two take-offs and landings and during one circuit of the field, made the traditional beat-up of the crowd.

Another grand old airplane to come out of retirement, but apparently only for exhibition, is the original de Havilland *Comet*, the DH *88* racer *Grosvenor House*. One of five originally built, the *Grosvenor House* was the winner of the England-Australia race in 1934. The crimson plane, which first flew on Sept. 8, 1934, was powered by two *Gipsy Six* engines of something around 200 hp each. Wingspan was 48', gross weight 5200 lb.

And still more news from England: The Fairey *Delta One*, third delta-winged experimental aircraft developed in Britain, has recently made its first flight at Boscombe Down. In some ways, this craft is the most radical of the three designs, and it is by far the smallest. Avro's *707B*, first triangular-winged plane to fly in England, was almost conventional in appearance. Then came the Boulton Paul *P111*, which was a little more unusual to the eye. And now, the *F.D.1*, which is hardly more than a fuselage. (Looks like some controline speed boys had at this one!)

The plane was developed by the Fairey Aviation Co. Ltd. after some months of experimenting with radio-controlled scale models and wind tunnel tests. The *F.D.1* has incorporated, probably as a result of these scale tests, fixed wingtip slots and a temporary horizontal tail. Both these features are to be removed after early test flights.

Wing-tip parachutes have been provided, and a single drogue chute is fixed to the fuselage stern for braking during the landing run. Power comes from a single Rolls-Royce *Derwent* turbojet; these engines are currently rated at 3500 lb. sea level static thrust. Only details released on the aircraft have been the span, 19' 6-1/2"; the length, 26' 3"; and the height, 13' 1".

France took another step towards regaining its past glories on March 15 with the first flight of the *SO 4000*, a twin-jet bomber. This particular plane is one of the more important types currently under development in France, and is the standard bomber implementing the five-year rehabilitation plan of the French Air Force.

Several years of research with half-scale powered and unpowered models have gone into the development of the *SO 4000;* its predecessors were the *M.1*, which was a glider launched pick-a-back from a *Languedoc 161*, and the *M.2*, which had a single *Derwent* turbojet.

Primary purpose of the models was to investigate the problems of near-sonic flight. Components being proved out included the basic wing geometry, a lateral control system which uses a combination of small ailerons and spoilers, and a scheme for ejecting the pilot through the bottom of the fuselage.

The *M.1* is purely a glider; it made its first flight in Sept. 1949. The *M.2* is a powered version of the *M.1* with minor changes. Its cockpit is an unusual feature of the layout, because it is completely flush with the upper fuselage line. For landing, the roof slides forward and the seat raises; a windshield is also extended into the slipstream. Landing gear consists of a nose wheel, and three wheels placed in tandem under the belly of


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the fuselage. Wing-tip skids prevent roll on the ground. Almost the entire trailing edge is flap; a small aileron near the tip is interconnected with spoilers to give lateral control.

The first prototype made its first flight in April, 1949. It was fitted with a temporary bubble canopy for the occasion. And apparently that bubble proved its worth, because the first pictures of the *SO 4000* (no longer a model) shows it, too, with a bubble. The *SO 4000* has two Hispano-built Rolls-Royce Nene turbojets placed side-by-side in the fuselage. Sweptback wing and horizontal tail clash with the unswept, prewar look of the vertical surface. Twin jet outlets are at the base of the fin.

The landing gear is different from the *M.2* —the same type of nose wheel is kept, but the main wheels now form a quadricycle unit under the wing-fuselage intersection. Each of the four main wheel legs is an independent component, and retracts into its individual well in the fuselage side.

Fuselage is in three sections: the nose section includes a pressurized cabin with the crew of two seated in tandem; the upper portion of the center section houses fuel, the lower, bombs; and the aft section is the engine bearer. Manufacturer of the *SO 4000* is the nationalized factory Societe Nationale de Constructions Aeronautiques de Sud-Ouest, S.N.C.A.S.O. for short. Wingspan of the *4000* is 58' 6"; length, 64' 9". Wing area is 807 sq. ft., and gross weight is around 48,000 lb. Estimated cruising speed is 515 mph at sea level.

### BRISTOL F.2B

***Dimensional Data***

| | |
|---|---|
| Wingspan | 39 ft. 4 in. |
| Length | 25 ft. 9 in. |
| Gross weight | 2800 lb. |
| Empty weight | 1850 lb. |
| Engine | R-R Falcon III |

***Performance Data***

| | |
|---|---|
| Speed, sea level | 126 mph. |
| Speed, 10,000 ft. | 113 mph. |
| Time to 15,000 ft. | 21.5 min. |
| Ceiling | 22,000 ft. |
| Stalling speed | 50 mph. |
| Full-throttle range | 270 mi. |

## AMA News

(*Continued from page* 23)

June 23 and 24, 1951, will mark the 13th year for the Annual Southeastern Regional Model Airplane Show (see contest listing for events). After twelve years of pioneering and financial struggling, the Georgia Congress of Model Airplane Clubs has come up this year with a sponsor which is giving its wholehearted supports. In fact, the Atlanta Exchange Club, sponsor, has already secured the 109 trophies for model flyers to shoot at.

Publicity hander-outer, Bob Elliott, says Atlanta promises real Southern hospitality to visiting flyers and suggests that you drop him a note right away at Box 5078, Atlanta 2, Ga., for further information.

*National AMA Records Pending.* With the new record categories for Outdoor Rubber, Hand-Launched and Towline Gliders, many record applications are being received to fill-in the blank spaces. Those that are pending acceptance follow. (The reason they are pending is that at the time this was written, ample time had not passed for AMA to be assured that others had not exceeded these flights on or before the date they were made.)

*Outdoor Hand-Launched Glider, Class A Junior*—4:45.8.. Flights made by Clifton Highman, Bakersfield, Calif., on April 7 using an original design.

*Outdoor Hand-Launched Glider, Class A Open*—8:21.6. Flights made by Dick Everett, San Diego, Calif., on April 7 using an original designed, *El Lobo*. *El Lobo* features a polyhederal wing with o-o settings on the wing and stabilizer. Fuselage is made of spruce, 21" in length, and the wing has a span of 20" with a 4" center chord.

*Towline Glider, Class D Junior*—8:09.8. Flights made by Arthur Fattig, Bakersfield, Calif., on April 7 with a *Floater*.

*Towline Glider, Class D Open*—14:11.0. Flights made by Elmer F. Achterberg, Visalia, Calif., on April 7 with a *Floater*.

*Free Flight Gas Models, R.O.G.-Type, Class AA Junior*—19:27.6. Flights made by John Andrews, Lawndale, Calif., on April 8 using an original design powered by a K & B .049. John's model has a rectangular shaped wing with a 33" span by 4-3/4" chord. Elevator has an 18" span by 4-1/4" chord. Airfoils are flat-bottomed with planked leading edges. Fuselage is of the pylon type, 24" over-all length, with elevator mounting on the underside in conjunction with a fuse operated pop down elevator. Prop used on the R.O.G. flights was a Tornado 6" D x 3" P.

*Free Flight Gas Model, R.O.G.-Type, Class A Junior*—28:36.2. Flights made by Johnnie S. Werts, Oildale, Calif., on April 8 using an Arden powered *Zeek*. Model was hand-launched.

*—Free Flight Gas Models, R.O.G.-Type, Class A Open—30 minutes.* Flights made by Homer Werts, Oildale, Calif., on April 1 using an Arden powered *Zeek*. R.O.G. launching was used.

*Clubs.* Several months ago, a memorandum was sent out by AMA to all Chartered Clubs and Chapters. In the memorandum, several questions were asked. One concerned how the AMA could better service these groups.

Overwhelmingly, the question was answered by another question, "How can our club go about interesting and maintaining Junior club interest?" That question is a good one and, in several instances, AMA Headquarters has passed on ideas for club projects that will interest club members of the younger ages. What is needed, though, are more ideas for projects that can be passed on to you and the hundreds of clubs. Undoubtedly there are many, many ideas for maintaining Junior interest in club activities and you can help by sending yours to AMA today.

Having trouble converting or interesting your controline club in free flight or vice versa? Here is one cure suggested by Gaylen Spurgin, Richmond, Calif., "I am the only member in our club that has ever flown any free flight and to foster interest in this fine but sadly neglected phase of modeling, this year I built an AA FF for every member of our club and put on an unofficial contest. I put up the trophies, was Contest Director and official timer. It was a big success for they are all building free flight models now. The man hardest to convince got an 18-minute flight on his first attempt! I have never seen anyone so enthused or so convinced."

*Flash*—Just as this issue was going to press, official word was received from Air Force Headquarters, Washington, D. C., that permission has been granted for the Air Force to conduct a model aviation program for airmen. Complete details are not yet available, but we hope to be able to give them to you in the next issue. Named as project officer of the program for 1951 was 1st Lt. Harry Vogler, Jr., Sheppard AFB, Texas.

*AMA Sanctioned Contests.*

June

3 Bethpage, L. I., N. Y. Class AAA Ltd. 6th


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3 Minneapolis & St. Paul, Minn. Class AAA 2nd Annual Talent Scout Contest. Events are CL, CLS, FFG, OR, and TLG. Flyers must be under 17 years of age; talent scout—over 17. Paul J. Ring, C.D., 2816 E. 42nd St., Minneapolis 6, Minn.

3 Carlisle, Pa. Team Racing Contest. Pending.

3 Akron, O. Class A Akron Society of Model Plane Engineers' Club Contest for HLG, TLG, and OR. Entry is restricted to members of the A.S.M.E. and the Akron district. Henry Thomas, Contest Director, 515 Mohawk Ave., Akron, O.

3 Lexington, Nebr. Class AA Nebraska State Stunt Contest. Donald R. Ross, C.D., Lexington, Nebr.

3 Detroit, Mich. Contest for CL, CLS, CLFS, and R. Write to Strathmoor Model Club, 16630 Winston, Detroit, Mich. Pending.

10 W. Woodburn, Ore. Class AA Free Flight Meet for FFG, HLG, and AA PAA Load. Roy V. Ellison, C.D., 5023 N. E. Union, Portland, Ore.

10 Defiance, O. Class AA Maumee Valley Model Airplane Meet for CL, CLS, and RC. Arnold G. Schilperoot, C.D., R.F.D. 1, Defiance, O.

10 York, Pa. Class A Model Airplane Meet for CL, CLS, FFG, and Beauty. Entry is restricted to residents of York and York Co., Pa. John M. Harman, C.D., 200 W. Market St., Hellam, Pa.

10 Schenectady, N. Y. Class A Club Trophy Contest for FFG and TLG. Entry is restricted to members of the Schenectady Aeroneers. John H. Schneider, C.D., 355 Mohawk Ave., Scotia 2, N. Y.

10 Flint, Mich. Contest for FFG, CL and CLS. Write to R. J. Dear, 720 Harrison, Flint, Mich., for information. Pending.

10 Bakersfield, Calif. Bakersfield Record Trials for FFG. Francis Stewart, C.D., 900-21, Bakersfield, Calif.

17 New York, N. Y. Class AAA Long Island Gas Monkeys' Championships. FFG and PAA Load events are scheduled. Ernest Roff, C..D., 56 Stuart Ave., Malverne, N. Y.

17 Natchitoches, Pa. Controline Meet. Pending.

17 Milwaukee, Wisc. Free Flight Meet. Pending.

17 McMinnville, Ore. Class AA Sky Wolves' Free Flight Contest for FFG and OR. James B. Conway, C.D., 2014 N. Evans, McMinville, Ore.

17 Winston-Salem, N. C. Controline Meet. Pending.

17 Lansing, Mich. Contest for FFG, CL, and CLS. Write to H. R. Sherman, 549 Beech, Lansing 12, Mich., for information. Pending.

17 Visalia, Calif. Visalia Model Airplane Assn. Record Trials for FFG. Emory O. Hull, Jr., C.D., P. O. Box 284, Ivanhoe, Calif.

17 Oklahoma City, Okla. Class AA Oklahoma City Model Activities Meet for FFG, TLG, HLG, and OR. Raymond C. Matthews, C.D., 3700 N. Lin, Oklahoma City, Okla. Pending.

24 Schenectady, N. Y. Class AA Schenectady Aeroneers Annual Meet. FFG, OR, TLG, and HLG events are scheduled. George Fowler, C.D., 93 East Side Dr., Balston Lake, N. Y.

24 Wilmington, Dela. Class AA Wilmington Exchange Club 1951 Meet for CL, CLS, Beauty, and Combat. W. Lewis Knowles, Jr., C.D., 515 Shipley St., Wilmington, Delaware.

24 Anaheim, Calif. Class AA Fullerton Model Club Stunt Contest. Lew Mahieu, C.D., 211 Rosevelt Rd., Long Beach, Calif.

## BEG PARDON

**Thru error the printer inserted the wrong prices for the Free Flight and U-Control Combinations in Atwood Mfg. Company's May 1951 issue advertisement. Prices previously established (Jan. 1951 issue) are still maintained at $6.75 for the Free Flight Comb. and $6.50 for the U-Control Comb.**


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24 Milwaukee, Wisc. Controline Meet. Pending.

24 Detroit, Mich. Free Flight Gas Meet. Write to Detroit Sky Guys, 9830 Wyoming Ave., Detroit 4, Mich., for information. Pending.

24 Miami, Fla. Class AA Tropic Aeros Free Flite and PAA Load Meet. FFG, TLG, HLG, OR, PAA Load, and Clipper Cargo events are scheduled. William Stoia, C.D., 1896 N. W. 36 St., Miami, Fla.

23 & 24 Atlanta, Ga. Class AAA Southeastern Model Air Meet for HLG, TLG, OR, FFG, CL, CLS, and CLFS. Fed G. Turner, Jr., C.D., 3284 Stillwood Dr., Hapeville, Ga. Note that this contest was originally scheduled for June 16 & 17.

30 Detroit, Mich. Class AAA Michigan State Exchange Club Contest for OR, FFG, CL, CLS, PAA Load, and RC. Entry is restricted to residents of Michigan. Frank P. Sposite, C.D., 9900 E. Jefferson, Detroit, Mich. This is a two-day meet. Second day is July 1.

30 Ada, Okla. Class AA Ada Jaycee-Plymouth Model Meet for FFG and CL. Roland E. Descans, C.D., 130 W. Main, Ada, Okla. This is a two-day meet. Second day is scheduled for July 1. Pending.

July

1 Shelby, O. Class AA Shelby Balsa Buzzards' 6th Annual Meet for FFG and OR. H. L. Robinson, C.D., Shelby Pure Milk Co., Shelby, O.

1 Lebanon, Pa. Pending.

4 Baltimore, Md. Pending.

8 Manchester, Conn. Class A Connecticut Stunt and Scale Meet for controline models. Entry is restricted to residents of Conn. George Fitzgerald, C.D., 83-1/2 Chanter Oak St., Manchester, Conn.

8 St. Cloud, Minn. Pending.

8 Akron, O. Class AA Akron Society of Model Plane Engineers Glider and Rubber Powered Championship Contest. Henry Thomas, C.D., 515 Mohawk Ave., Akron, O.

8 Winston-Salem, N. C. Free Flight Meet. Pending.

15 Cleveland, O. Class AA 4th Annual AA Contest for FFG. John W. Grega, C.D., 10422 Gay Ave., Cleveland, O.

15 Philadelphia, Pa. Pending.

22 Falls Church, Va. Pending.

22 Greenville, O. Pending.

22 Visalia, Calif. Visalia Model Airplane Assn. Record Trials for FFG. Emory O. Hull, Jr., C.D., P. O. Box 284, Ivanhoe, Calif.

23-29 Dallas, Tex. National Model Airplane Championships.

August

5 Minneapolis, Minn. PAA Load Contest. Pending.

5 Akron, O. Glass A Akron Society of Model Plane Engineers' Club Contest for HLG, TLG, and OR. Entry is restricted to members of the A.S.M.E. and residents of the Akron district.

19 Hicksville, L. I., N. Y. Class AA Long Island Invitational AA Championships. All AA Free flight events are scheduled including ROW, Flying Scale, and Clipper Cargo. William Johnke, C.D., 601 Meadowbrook Rd., Uniondale, Hempstead, N. Y.

19 Visalia, Calif. Visalia Model Airplane Assn. Record Trials for FFG. Emory O. Hull, Jr., C.D., P. O. Box 284, Ivanhoe, Calif.

22-27 Detroit, Mich. Class AAAA Ltd. Fifth International Model Plane Contest. Tentatively scheduled events are OR, OHLG, FG, CL, CLS, CLFS, TR, Navy Carrier, and Combat. See your Plymouth Dealer for information.

September

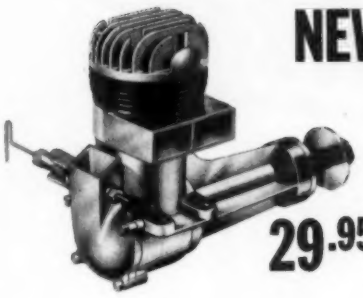
2 & 3 Pawtucket, R. I. Class AAA All New England Model Meet for CL, CLS, CLFS, TR, FFG, and OR. Arthur Bergeron, C.D., 55 Ricard St., Seekonk, Mass.

3 Far Hills, N. J. Pending.

9 New Britain, Conn. Class AAA Connecticut State Championships for CLS, CLFS, and CL. Richard Matava and Michael Adajian, C.D's., 358 Prospect St., Hartford, Conn.

9 Akron, O. Class AA Inter-City Wakefield Type Team Competition. Henry Thomas, C.D., 515 Mohawk Ave., Akron, O.

16 Visalia, Calif. Visalia Model Airplane

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*Key to listing of events*: FFG—Free Flight Gas; CL—Controline Speed; OR—Outdoor Rubber; TLG—Towline Glider; OHLG—Outdoor Hand-Launched Glider; CLS—Controline Precision (Stunt); CLFS—Controline Flying Scale; RC—Radio Control; TR—Team Racing.

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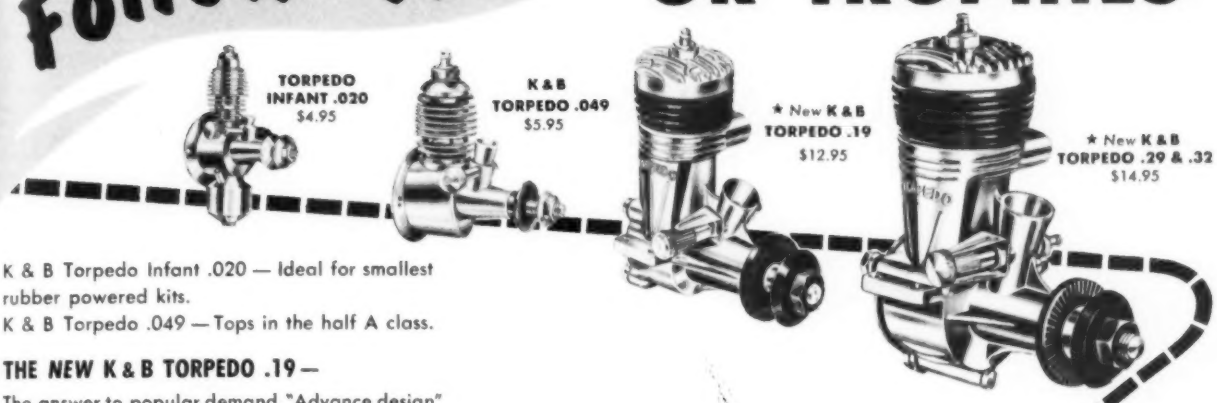


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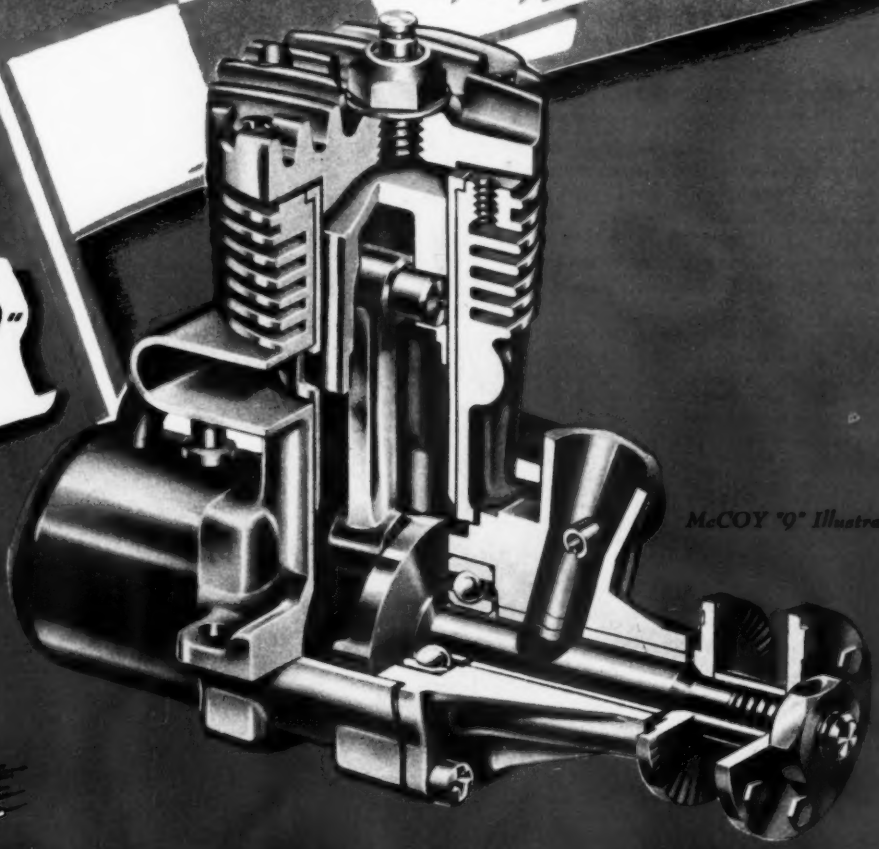

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